CLINICAL EVALUATION OF SIDDHA HERBAL FORMULATION "MALLIKAI CHOORNAM"(INTERNAL) IN THE TREATMENT OF "AZHAL NEERCHURUKKU"(URINARY TRACT INFECTION)

The Dissertation Submitted by

Dr.G.RATHIGA

PG Scholar

Under the supervision of

PROF.DR.K.MANICKAVASAKAM,M.D(S)

Head of the Department of Maruthuvam & Former director

National Institute of Siddha, Chennai-47.

For the partial fulfillment of

Requirements to the degree of

DOCTOR OF MEDICINE (SIDDHA)

(AFFLIATED TO THE TAMILNADU Dr.M.G.R.MEDICAL UNIVERSITY)

BRANCH I – DEPARTMENT OF MARUTHUVAM

NATIONAL INSTITUTE OF SIDDHA

TAMBARAM SANATORIUM, CHENNAI-600 047

OCTOBER - 2018

DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled " CLINICAL EVALUATION OF SIDDHA HERBAL FORMULATION **"MALLIKAI CHOORNAM"** IN THE TREATMENT OF **AZHAL NEERCHURUKKU (URINARY TRACT INFECTION**)" Guidance of **Dr.T Lakshmi Kantham M.D(s)**, Department of Maruthuvam, National Institute of Siddha, Chennai -47, and the dissertation work has not formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

Date:

Place: Chennai -47 signature of the candidate

(Dr. G.RATHIGA)

BONAFIDE CERTIFICATE

Certified that I have gone through the dissertation submitted by **Dr.G.Rathiga,** (Reg No: 321511205) a student of Final year MD(S), Branch I, Department of Maruthuvam, National Institute of Siddha, Tambaram Sanatorium, Chennai-47 and the dissertation work has been carried out by the individual only. This dissertation does not represent or reproduced the dissertation submitted and approved earlier.

Date :

Place : Chennai-47

Name of the Signature of the Guide
Dr.T.LAKSHMI KANTHAM,M.D(S)
Lecturer/ Guide
Department of Maruthuvam
National Institute of Siddha.

Name of the Signature of the HOD
Dr.K.MANICKAVASAKAM,M.D(S)
Head of the Department
Department of Maruthuvam
National Institute of Siddha.

Forwarded by the Head of the Institute
Prof. Dr.V.BANUMATHI,M.D(S), Director
National Institute of Siddha
Tambaram Santorium, Chennai-600 047.

ACKNOWLEDGEMENT

I express my heartful gratitude to the Prof. **Dr. V. Banumathi.M.D(s),** Director, National Institute of Siddha, Chennai-47, for arranging the facilities for successful completion of my project.

I express my heartful thanks to our respectable Prof**. Dr.K. Manickavasakam**. **M.D(s),** Head Of the Department, Department of Maruthuvam and former Director, National Institute of Siddha, Chennai, for his valuable suggestion to complete my dissertation.

I express my sincere thanks to my respectable Guide **Dr. T.Lakshmi kantham.M.D(s),** lecturer, Department of Maruthuvam, National Institute of Siddha, Chennai, for her valuable suggestion and guidance to complete my dissertation.

I express my sincere thanks to **Dr.N.Periyasamy pandian.M.D(s)**, Associate professor, Department of Maruthuvam, National institute of Siddha. Chennai.

I express my sincere thanks to **Dr.H.Vetha merlin kumari.M.D(s), Ph.D**, Lecturer, Department of Maruthuvam, National institute of Siddha. Chennai.

I express my sincere thanks to **Dr.H.Nalini sofia.M.D(s), Ph.D**, Lecturer, Department of Maruthuvam, National institute of Siddha. Chennai.

I express my sincere thanks to **Dr.D.Aravind.M.D(s),** Msc [medicinal plants] Assistant professor, Department of Medicinal Botany, National institute of Siddha. Chennai, for his great support in raw drug identification and authentication.

I express my sincere thanks to **Dr.A.Mariappan.M.D(s)**, Lecturer, Department of Gunapadam, National institute of Siddha. Chennai, for his guidance in trial drug preparation.

I express my sincere thanks to **Dr.V.Muthuvel, Ph.D**, Asst Professor, Biochemistry laboratory (i/c), National institute of Siddha. Chennai, for his support in chemical analysis of trial drug.

I express my sincere thanks to **Mr.M.Subramaniyan, M.sc** (statistics), Senior Research Officer, National institute of Siddha. Chennai, for guidance in statistical analysis.

I express my sincere thanks to **Dr.N.Kabilan.M.D(s)**, Professor & Head, Department of Siddha, The Tamilnadu Dr.MGR Medical University, Chennai, for his guidance in physico chemical and phytochemical activity of trial drug.

I express my sincere thanks to **Dr.D.Sivaraman, M.Pharm, Ph.D**, Noble research solutions, Sathyabama University, Chennai for his guidance in Pharmacological activity of trial drug.

I wish to thank the technicians of the Clinical pathology Laboratory, Bio-chemistry Laboratory, Gunapadam Lab and Librarian, National Institute of siddha, Chennai.

I specially thanks to my parents, brother and friends for their continuous help and encouragement to do this dissertation work.

INDEX

INTRODUCTION

INTRODUCTION

The science of medicine is of fundamental importance to man's well being and his survival and so it must have originated with man and developed as civilization advanced. A system of medicine is not a discovery but a gradual evolution during successive periods of discovery.

The term 'siddha' comes from the word 'siddhi' which means an object to be attained (or) heavenly bliss. The siddha system of Medicine is the science of life. This system is taking care of prevention of diseases, comprehensive fitness of the body and mind (ie. Sthoola sareram and sookuma sareeram).

Panchapoothams are the basic fundamental elements in the universe and in man, the changes in the universe can change or affect the human body also as well as per chatamuni gnanam as.

அண்டத்திலுள்ளதே பிண்டம்
பிண்டத்திலுள்ளதே அண்டம்
அண்டமும் பிண்டமும் ஒன்றே
அறிந்து தான் பார்க்கும் போதே.

(சட்டமுனி ஞானம்)

The changes in the Panchapoothas will result in various type of diseases.

நாடியால் முன்னோர் சொன்ன நற்குறி குணங்களாலும்
நீடிய விழியினாலும் நின்றநாக் குறிப்பினாலும்
வாடிய மேனியாலு மலமோடு நீரினாலும்
சூடிய வியாதி தன்னைச் சுகம்பெற வறிந்து சொல்லே

(அகத்தியர் நாடி)

Siddhars have their own way of diagnosing a disease by ‘Envagai thervugal’. The observation are made based on skin, colour, speech, eye, tongue, excreta (urine and motion) and all its variations from normal condition.

The siddha system of medicine is based on thrivital humours (Life forces- Vadham, Pitham, and kabam). Governing biological function of the body under the influences of Panchapootham.

மிகினும் குறையினும் நோய்செய்யும் நூலோர்
வளிமுதலா வெண்ணிய மூன்று.

(திருகுறள்)

When natural harmony of the three vital humours is affected by altered Panchapoothams, it results in diseases.

Saint Yougi classified the diseases into 4448. Among them Siruneer noikal (urinary disorders) are further classified into,

» Neerinai arukkal noi

» Neerinai perukkal noi

Azhal neerchurukku comes under the classification of neerinai arukkal noi and it is commonly prevalent in our country. Azhal neerchurukku incidence and its clinical signs and symptoms are mostly correlated with lower urinary tract infection in Modern scientific system of medicine because of its similarities.

Urinary tract infection is the second most common type of infection. These infection are much more common in girls than boys and men younger than 50 years of age. Recurrent infection cause considerable morbidity. If complicated it can cause severe renal disease including end stage renal failure. So there is a need for early screening & treatment for this easily curable infectious disease.

In the text Chikicha Rathina Deepam, Mallikai choornam (Internal medicine) a Siddha formulation have been indicated for Azhal neerchurukku. The method of preparation seems to be simple and cost effective. Siddha formulation are not only treat the disease but also strengthens the urinary tract.

So I selected Azhal neerchurukku as my dissertation subject for the present study, in order to give new innovation of treatment to help the suffering society.

AIM AND OBJECTIVES

AIM AND OBJECTIVE

AIM:

Clinical evaluation of siddha drug "MALLIKAI CHOORNAM" (Internal) in the treatment of Azhal Neerchurukku (Urinary Tract Infection).

PRIMARY OBJECTIVE:

To evaluate the therapeutic efficacy of Mallikai choornam in the treatment of Azhal Neerchurukku (Urinary Tract Infection) patient through urine culture.

SECONDARY OBJECTIVE:

To study Azhal neerchurukku, on the basis of Envagai thervu, Mukkutram, Kalam, Naadi, Neerkuri, etc. in order to evaluate the pathology.

To study cofactors related to the disease such as age, sex, life style such as food, occupation etc.

To prepare the drug as per SOP .

To evaluate the physico chemical and phytochemical analysis.

To evaluate the antimicrobial activity of study drug.

To evaluate the lithotriptic activity of study drug.

REVIEW OF LITERATURE

SIDDHA ASPECT

LITERATURE REVIEW-SIDDHA ASPECT

AZHAL NEER CHURUKKU

Urinary disorder are classified into two major categories. They are,

1.Neerinai Arukkal Noi

2.Neerianai Perukkal Noi

These disorders produce decreased amount of urine and increased amount of urine respectively.

“நீரிருவினை குணத்தை நீயறிவிரித்துச் சொல்வாம்
நீரினை பெருக்க லொன்று நீரினையருக்கலொன்று”

-தேரன் கரிசல்

Neerchurukku was described under the category of Neerinai Arukkal Noi.

NEERCHURUKKU

Synonyms-வேறுபெயர்கள்:

Neer arugal

Neerkaduppu

Moothira kiricharam

Moothira kadharogam

Salasthamba vatham

Definition-இயல்:

“நீரினையருக்க லென்னும் நீர்கட்டின் குணத்தை கேட்டி
நீதமில்லாமற் கோச நீர்புழை நெருப்பு போலாம்”

-தேரன் கரிசல்

It is a disease of the Urinary Tract Infection causing burning and scanty micturition.

Aetiology – நோய் வரும் வழி:

I .According to yougi vaithiya chinthamani.

நவிலவே நாரியரைத் துரோகம் பண்ணி
நடுவிலே கைவிட்டு நழுவி னோர்க்கு
குவிலவே குழந்தைகள்தான் பசித்திடுக்கக்
கூடவேவைத் துண்ணாக்கொ டுமையோர்க்கு
தவிலவே மூத்திரமாங் கிரிச்சம் வந்து
கலக்கு மென்றுமாமுனி வர்கரு தினாரே"

-யூகி வைத்திய சிந்தாமணி-736

1. Cheating damsels
2. Least bothered about the pangs of hunger of a child and satisfying only themselves callously
3. Not providing water to thirsty people.

"கருதியே மாப்பண்டங் கதித்து உண்ணல்
காலங்கள் மாறியேமி கப்பொசித்தல்
பருதியே பகல் தனிலேஸ் திரிசங் கித்தல்
பகல்த னிலேபால்கொள்ளல் பகலுறங்கல்
நிருதியே நிசிதன்னிற் சயனஞ் செய்தல்
நித்தையாம் லாகிரிகள் நிரம்ப வுண்ணல்
வருதியே அக்கினியில் சஞ்ச ரித்தல்
மகத்தான கிரிச்சரத்தின் மருவு வாரே."

-யூகி வைத்திய சிந்தாமணி-737

1. Taking excessive carbohydrates.
2. Taking excessive food at irregular times.
3. Having sex at day time.
4. Taking milk in the day time.
5. Sleeping in the day time and late time.
6. Excessive chewing tobacco like products.
7. Working in a hot place.

II.According to Siddha Maruthuvanga Churukkam.

"நீரினைத் தடுத்தல் செய்யின்
நீர்கட்டுத் துவாரம் புண்ணாம்"
-சித்த மருத்துவாங்க சுருக்கம்.

"சுக்கிலம் தனையடக்கின்
சுரமுடனீர்க் கட்டாகும்"
-சித்த மருத்துவாங்க சுருக்கம்

1. Avoiding normal micturition
2. Avoiding natural semen ejaculation.

III. According to Agathiyar guna vagadam,

"பாரடா மூத்திரக் குண்டிக்காயின்
பதிவான மூத்திரப்பை நீர்த்தாரை தானும்
ஏரடா எதற்கேனும் வியாதி காணில்
இதமான கருப்பிணியில் மூத்திரப்பை தானும்
வாரடா கருப்பையை அழுத்தலாலும்
வளமான மூத்திரப்பை கெடுதலாலும்
கூறடா மூலத்தின் அழலையாலும்

கொற்றவனே இந்நோய் வருகும் பாரே.”

-பாடல்-265, பக்கம்-67

“வருகுமடா சீரணத்தின் தொழில்தான் கெட்டு
வளமாக அதிகஉஷ்ணத்தினாலே யப்பா
மருவியே இன்னோய்தான் வருகும் வேளை
மானிடர்க்கு அடிக்கடி தான் சிறுநீர் காணும்
திருகியே அதையடக்க முடியா தப்பா
திரேகத்தில் பிரயாசை மிகவே காட்டும்
குறுகியே மூத்திரந்தான் இறங்கும் பாரு”

- பாடல்-266, பக்கம்-67

1. Renal disorder
2. Bladder & urethral disorders
3. In pregnancy (bladder is compressed by gravid uterus)
4. During digestive disorders.
5. All the above causes’ frequency of micturition and scanty micturition.

“உண்டாகும் காரணத்தைச் சொல்லக் கேளு
உத்தமனே மூத்திரத்தின் பையிலே தான்
நண்டான கல்லுகள்தான் இருக்கலாலும்
நலமான மூத்திரப்பை குண்டிக்காய் ரோகம்
திண்டான மலக்குடல் கருப்பாசய மான
தீங்கான ரோகத்தால் இந்நோய் காணும்
பண்டான அதிபோகம் சூதகசன்னி
பாழான ஆசனக்கிருமி நோயால் இந்நோய்
தோன்றுங்கானே”

-அகத்தியர் குணவாகடம்(270) பக்கம்-68

1. Renal calculi
2. Disorders in kidney, bladder
3. Rectal disorders

4. Excessive sex desire

5. Anal canal infection (worm infestations)

IV.According to Dhanvanthiri vaithiyam,

"அதிக உட்டின பதார்த்த மசீரண பதார்த்த்தாலும்
அதிக சம்போகத்தாலு மதுபான மடுக்கலாலும்
அதிகன மானவஸ்து உண்டியி ருக்கலாலும்
அதிகமூத் திரமதன்னிற் கிரிச்சன மடுக்கமென்னே"

-தன்வந்திரி வைத்தியம் பாகம்-2,பக்கம்-209

1. Taking hot and hard digestive food
2. Excessive coitus, Excessive intake of food
3. Taking liquors.

Premonitory Symptoms- முற்குறி குணங்கள்

1.நீர் சரியாக இறங்காமல் மிக்க நேரங்கழித்து நீர்கழிகையில், அந்நீர் அளவில் குறைந்தும் எடையில் சுருங்கியும் காணப்படும்.

2.நிறத்தில் சிவந்தும், சிலவேளை புலால் மணத்துடனும் வெளிப்படும்.

3.நீர்புழையில் தாங்க முடியாத வலி, எரிச்சல் என்னும் குறிக்ளை உண்டாக்கி, நீர்சொட்டு சொட்டாய் இறங்கும்.

4.இடுப்பில் வலியும் ஏற்படும்.

1. Scanty urination
2. Sometimes reddish colour, foul odour urine
3. Painful and burning micturition
4. Suprapubic pain

Classification

I.According to yougi vaithiya chinthamani:

“தெரியவே கிரிச்சரத்தின் செயலைத் தானுஞ்
செப்பவே நாலுவகைச் சீரு மாகும்
உரியவே வாதமூத்தி ரக்கி ரிச்சம்
உகப்பான பித்தமூத்தி ரக்கி ரிச்சம்
பரியவே சிலேத்தும மூத்தி ரக்கி ரச்சம்
பாங்கான மேகமூத்தி ரக்கி ரிச்சம்
நரியவே கிரீச்சரந் தானால தாகும்
நாட்டமாய் உற்பத்திந விலக் கேளு”

Four types of Neerchurukku. They are

1. Vadha neerchurukku
2. Pitha neerchurukku
3. Kabha neerchurukku
4. Mega neerchurukku

II. According to Dhanvanthiri vaithiyam,

“அடுத்திடும் வாதபித்த மருங்கபஞ் சந்நிவாதந்
தொடுத்த மூத் திரக்கிரந்தி சுக்கிலக் கிரிச்சங் காதம்
அடுத்த சர்க்கரமே வாத குண்டலி வாதவத்தி
எடுத்திடுங் கிரிச்சன த்தின் பெயரிவை
யீரைந்தாமே”

-பாகம் 2,பக்கம்-209

Dhanvanthiri classified Neerchurukku into ten types.

1. Vadha neerchurukku
2. Pitha neerchurukku
3. Kabha neerchurukku
4. Sannivadha neerchurukku
5. Moothira sukila neerchukku
6. Moothira katha neerchurukku
7. Moothira kiranthi neerchurukku
8. Chakkara neerchurukku
9. Vadha kundala neerchurukku
10. Vadhavathi neerchurukku

III. According to pararasa shekaram,

"உற்றே தோன்றும் கிரிச்சிந்தா
நுரைத்தார் நாலு வகையாகச்
சொற்ற வாத பித்த கபந் தொந்த
மென்பரவை நாலும்"

-பரராசசேகரம்,பக்கம்-69,பாகம்-5.

In Pararasa sekaram neerchurukku is classified into 4 types

1. Vadha neerchurukku
2. Pitha neerchurukku
3. Kabha neerchurukku
4. Thontha neerchurukku

IV. According to Madhava Nidhanam.

An Ayurvedic text described the disease into 8 types. They are

1. Vadha neerchurukku	2.Pitha neerchurukku
3. Kabha neerchurukku	4.Sannipatha neerchurukku
5. Koothaja neerchurukku	6.Pureeshaja neerchurukku
7. Acharisha neerchurukku	8.Sukkaraja neerchurukku

V. In Anuboga vaithiya deva ragasiyam-

Neerchurukku is classified in to following types.

1. Vadha neerchurukku	2.pitha neerchurukku
3. kabha neerchurukku	4.Thirithoda neerchurukku

VI. According to sirappu payeram- (Pachayappa Mudaliar)

Neerchurukku was classified into 4 types

1. Vadha neerchurukku	2.Pitha neerchurukku
3. Kabha neerchurukku	4.Sannipatha neerchurukku

Then the book classified into Moothira thosarogam into 12 types. They are

1. Vadha vasthi	2.Vadhastilam
3. Vadha kundaligam	4.Moothira sadaram
5. Moothira theetham	6.Moothira sangam
7. Moothira kiranthi	8.Moothira sukram
9. Vitvikatham	10.Ushnavadham
11. Moothira shyam	12.Moothira saatham

பக்கம்-125

Mukkutra verupadugal:

"வாத பித்த மைய மூன்றும்
வன்பலத்துடனே தத்தம்
பேதமொன்றில்லா வண்ணம்
பேசிய தானந் தன்னில்
நீதியாய் நிலைத்து நிற்கில்
நெடும்பிணி சிக்கவில்லை
தாதுமொன்றோடொன்று
தாவிடிற் பிணிகள் தானே"

-சித்த மருத்துவ நோய்நாடல்
நோய் முதனாடல் திரட்டு-பக்கம்-155

2. "வழங்கிய வாதம்மாத்திரை யொன்றாகில்
தழங்கிய பித்தந்தன்னிலரை வாசி
அழங்கு கபந்தானடங்கியே காலோடில்
பிறங்கிய சீவர்க்குப்பிச கொன்றுமில்லையே"

[குணவாகடம்]

Disharmony of the Uyirthathus leads to disease.Certain extrinsic, intrinsic, food and habits can change the hormony of the uyirthathus into thirithodam.

That is "தன்வினை புறவினை தாழினும்மிகினும்
உடலைப்பிணிக்கு முண்மையிது தாமே-manuscript

In neerchurukku vadham is altered, this inturn affects abanan and viyanan. Abanan possess property of theyu bootham. So it increase pitham which has following symptoms.

"ஏலவார் குழலாய் பித்தஞ்செய்குணம் விளம்பக்
கேளாய்
கோலவேல் விழிசிவந்து குளிர்ந்திருக்கு மல்லால்
சீலவே நீர்கடுத்து நொந்து சுறுக்கென வந்துவீழும்

ஞாலமே கிறுகிறென்று நாவுலர்ந்திருக்குங் காணே”

-ரத்தினச் சுருக்கநாடி

It describes that aggravation of pitham produces symptoms of neerchurukku

1. Burning micturition
2. Burning pain in the external genitalia
3. Dryness of the tongue

Affected viyanan altered Akayapootham. This produces the following symptoms.

1. Pain all over the body
2. Fatigue

CLINICAL FEATURES-குறிகுணங்கள்

I.According to Yougi vaidhiya chinthamani.

i.Azhal neerchurukku-அழல் நீர்சுருக்கு

“தான் மூத்திர மஞ்சளித்து மிகச் சிவக்கும்
தளர்ந்துமே கைகாலு மசதியாகும்
பானருக்கிச் சிறுகலா யருவி பாயும்
பாரமாங் குதமண்டமி லிங்கந் தானும்
கான்வாயுதான் மீறிவயிறு உப்பும்
களக்ளென்று இரைச்சலாய்க் கசங்கி யேறும்
வேங்காயு வாயுலர்ந்து மிரட்சியாகும்
விடும்பித்த மூத்திரத்தின் விவரந் தானே”

1. Yellowish (or) Reddish discoloured urine
2. Malise (Pain in the upper & lower limbs)
3. Scanty urination
4. Supra pubic pain (lower abdominal pain)
5. Heaviness of external genitalia
6. Dryness of mouth
7. Flatulence-Abdominal distension.

Clinical features of other types:

ii.**Vali neerchurukku-வளி நீர்சுருக்கு**

"மருவவே மேகம்வந் துற்ப வித்தல்
வளர்நாபி தன்னிற்றுள் மாம்சஞ் சிக்கித்
துருவவே சுக்கிலத்தால் மாமிச முற்றிச்
சுழன்றுமே தம்பித்து வாயு தன்னால்
சிறுகவே சிறுநீர்வீழ் குதற்றான் சிக்குந்
தேகமெங்குந் துளைத்துமே கடுப்பு மாகும்
அருவவே துன்மாமிசங் கறுப்பாய் வீழும்
அருக்கமே வாதத்தின் கிரிச்சந் தானே"

1. Due to venereal disease, inflammation of bladder wall.
2. Excessive coitus
3. Scanty urination
4. Pain all over the body
5. Excretion of desquamated blacky renal (or) urinary tract cells.

iii.Iya neerchurukku-ஐய நீர்ச் சுருக்கு

"விபரமாய் வற்றியண்டங் குதம்வ லிக்கு
மேனியிமே வெளுப்பாகி மிக்கண் பச்சை
திபரமாய்க் கிறுகிறுத்து தியக்க மாகும்
தேகமெல்லாம் மிகக்கடுப்புச்சொறிச்சலாகும்
அபரமாய ரிக்கிநீர் எரிச்ச லாகும்
அடிக்கடிக்கு நீர்கசிந்து அலைச்சலாகும்
நிபரமாய் லிங்கத்திற் கூச்ச லுண்டாம்
நீச்சான சேட்டுமத்தின் கிரிச்சந் தானே"

1. Pain in the external genitalia & anus
2. Pallor
3. Fainting
4. Pain & itching all over the body.
5. Burning micturition
6. Frequency of micturition.

iv.Mega neerchurukku-மேக நீர்ச் சுருக்கு

"கிரிச்சமாய டிக்கடிக்கு வெள்ளை காணும்
கிட்டுமே நீர்த்தாரை யடியிற் றானும்
புரிச்சமாய் புறாவெச்சம் போல விழும்
புடுங்குமே அடிவயிற்றிற் புழுக்க ளூர்ந்து
விரிச்சமாய் வெள்ளைதான் கவிச்ச டிக்கும்
விம்மும்போது உடலுச்சிம யிரைத் தூக்கும்
குரிச்சமாங் குதமிலிங்கம் வேக்கா டுண்டாம்
குமுறுமே மேகத்தின் கிரிச்சந்தானே"

1. White discharge like dove's faeces
2. Worm like sensation in the lower abdomen
3. White discharge with foul smelling
4. Horripilation
5. Burning sensation of the external genitalia & anus.

II.In Pararasa sekaram.

"சிறுநீ ரெரிந்து துளிதுளியாய்ச்
சேரு நிறமுமஞ்சளாய்
உறுமே சிவப்பாய் வெள்ளையு
மாயுவாதி மிகுந்து கடுத்து நொந்து
பெறுமே யன்றிப் கடுத்துளையும்
பின்னு மபானங் கடுத்துளையும்
செறுமே பொருமுங் கீழ்வயிறு
தேக மெலியுங் கிரிச்சிரமே".

1. Burning & painful micturition
2. Passing urine drop by drop
3. Yellow, white (or) red discolouration of urine
4. Painful rectum
5. Lower abdominal discomfort
6. Loss of weight

III.In theriyar vagadam

"மூத்திரக் கிரிச்சிக் குணங்கேளீர்
முடுகுந்துளியாய் விழுஞ்சற்றே
ஆற்றித் தூரம் நடக்கவொட்டா
தறுவை மருந்தாலாற்று விடும்
தூற்றி விளைவாய் விளைந்திருந்தால்
துடையால் கடுகி விழுமென்று
மாற்றி மறுக்க வகைகாண
மனுவேர்க் கெல்லா முரைப்பீரே"

-168, தேரையர் வாகடம், பக்கம்-59

கருப்பஞ்சாறு கண்டுகள்ளுக்கூடிய
மோருங் காண்பிக்கும்
சுருக்குச் சுண்ணஞ் சுக்கிலமுந்
துவர்மண் ணதுபோல் தோன்றிவரும்
வருக்கமுடனே காமியந்தான்
மருத்துவிழும போல் மருகிடுங் காண்
நெருக்கு மூத்திரக்கிரிச்சியென்று
நெறியோர் குரியாய் நிகழ்த்தியதே

-169, தேரையர் வாகடம், பக்கம்-59.

1. Passing urine drop by drop.
2. Difficulty in walking for long distance
3. It relived by surgery
4. Butter milk, semen, liquor, lime-like urination
5. Painful micturition.

IV.In yougi vaithiya chinthamni

Symptoms of Salathamba vatham (Neerkatha vadham is mostly identical symptoms as Azhal neerchurukku.

"தானென்ற மலத்துவா ரத்தி னோடு
தாக்கியே செலத்துவா ரந்தொ டங்கி
வேனென்ற நீரிறங்கும் போது தானும்
வெடிவுண்ணில் நோவுபோற்கிலேசம் பண்ணும்
வானென்ற மலங்கடுத்துச் சிறுகி வீழும்
மயிர்க்கூச் சுண்டாகியே வருத்தம் பண்ணும்
தேனென்ற தித்திப்புப் போல்நீ ராகும்
சிறுகிவிழுஞ் சலத்தம்பச் செய்கை யாமே"

-யூகி வைத்திய சிந்தாமணி

1. Primarily anus is affected and then the disease spread to urinary orifice.
2. Sever pain during micturition & burning sensation
3. Constipation
4. Glycosuria
5. Scanty urination.

பித்த நீர்ச் சுருக்கு இயல்பு

V.According to pararasa sekaram

"பித்தத்திற் கிரிச்சி ரந்தான் பேசரு மழற்சி யாகி
உற்றநீர் மஞ்சள்போலு முறுசெம்மை நிறமுங்
கொள்ளும்

மற்றுட லசதியாகும் வாய்மிக வுலர்ந்து காட்டும்
சொற்றிடு மபான்ந் தானுந் துயர்மிகக் கடுக்கு
மென்பதே”

பக்கம்-69-70

1. Yellowish (or) reddish discoloured urine
2. Malaise
3. Dryness of tongue
4. Pain in the anus.

VI.Dhanvanthiri vaidhiyam

Symptoms of Pitha neerchurukku

“நீர்விட்டுங் காலந்தன்னில் நெலிவுற மெலிவு செய்யுஞ்
சோருநீர் மஞ்சள் போலத் தோன்றிடுஞ் சிவந்து வீழும்
யேற் பெற வெரிந்து நொந்து கடுத்திடு மிக்குணங்கள்
கூர்விழி மானே பித்த கிரிச்சன மென்று கூறே”-பக்கம்209

1. Loss of weight
2. Yellow & reddish discoloured urine
3. Painful & burning micturition.

VII. In Athma Ratchamirtham vaidhiya sara sangiragam

பித்த நீர்சுருக்கின் இயல்பு

1.நீர்தாரைப் புண்ணாகி, நொந்து வீங்கிக் கடுத்து எரியும்
2.நீர்வருவது போலிருக்கும். இறங்காது.
3.இறங்கினால் ஒவ்வொரு துளியாய் வீழும்.அப்போழுது சகிக்க முடியாத வேதனையும், மயக்கமும் காணும்.
4.உணவு செல்லாது. உடல் மெலியும்.

1. Urethral passage will be ulcerated, Pain, swelling and burning sensation will also present
2. Desire of urination, but no output
3. Passing urine drop by drop. During micturition more pain will be present.
4. Yellow,red,white discoloured urine

5. Anorexia, weight loss

VIII. In Anubava Vaithiya Deva Ragasiyam

பித்த நீர்சுருக்கு இயல்பு

நீர்துவாரத்தில் நோயையும், எரிச்சலையும் உண்டாக்கி மஞ்சள் சிவப்பு நிறங்களாக நீரை இறங்கச் செய்யும்.

1. Pain, burning sensation in the urethral orifice
2. Yellowish & reddish discolouration of urine. Page-130

General clinical features: (All types of Neerchurukku)

1. Burning micturition
2. Frequency of micturition
3. Difficulty in micturition
4. Scanty micturition
5. Pain in the external genital organs
6. Pain all over the body
7. Lower abdominal discomfort
8. White discharge

In Azhal Neerchurukku

According to Yougi Vaithiya Chinthamani

1. Yellowish (or) Reddish discoloured urine
2. Vague pain in the upper & lower limbs
3. Scanty urination
4. Frequency of urine
5. Pain in the external genital & anus
6. Flatulence – lower abdominal pain
7. Dryness of mouth.

In additional to above the other symptoms are

8. Burning micturition
9. Painful micturition
10. Anorexia

Diagnosis (Piniyari muraimai)

Diagnosis is the very important thing for a physician by which he deals the disease by finding its cause and is helpful to undertake a correct line of treatment and also prognosis.

The diagnosis is based on

1. Poriyalarithal (Inspection)
2. Pulanalarithal (Palpation)
3. Vinathal (Interrogation)
4. Envagai thervugal

(1) poriyal arithal (Inspection)

Porikal are the five organs of perception. They are nose, tongue, eyes, skin and ears.Poriyalarithal is examining the pori of the patient by pori of the physician.

(2) Pulanal arithal (Palpation)

Pulangal are theobject of sense namely smell, taste,vision, sensation and sound In Azhal neerchurukku most of the patients have supra pubic tenderness (or) Lower abdominal pain

(3)Vinathal (Interrogation)

By Vinathal, the physician knows about the patient's name, age, occupation, native place (thinai), family history, socio economic status, dietary habits, his (or) her complaints, history of past illness, relevant history of treatment and habits etc.

(4)Envagai thervukal

It is the basic diagnostic principle and the unique speciality of the siddha system of medicine. The following verses reveals this as follows.

"நாடிப் பரிசம் நா நிறம் மொழி விழி
மலம் மூத்திரமிவை மருத்துவராயுதம்" -தேரன்

Envagai thervugal are

1. Naadi(pulse)
2. Sparisam (Palpation)
3. Naa (Tongue)
4. Niram (Colour of skin)
5. Mozhi (Speech)
6. Vizhi (eyes)
7. Malam (Motion)
8. Moothiram (Urine)

i)Naadi

Naadi is defined as

உடலில் உயிர் தரித்திருப்பதற்குக் காரணமானசிவசக்தி எதுவோ அதுவே தாது அல்லது நாடி எனப்படும்.

-நோய் நாடல் நோய்முதனாடல் திரட்டு

Formation of Naadi

The Three thathukkal are formed by the combination of three naadies with three vayus

Idakali + Abanan –Vadham

Pinkali + Pranan - Pitham

Suzhumunai + Samanan – Kabham

“வந்த கலை மூன்றில் வாய்வாம்பான்னுடன்
தந்த பிராணன் சமானனும் சந்தனமுறக்
கூட்டுறவில் ரேசித்தல் கூறும் வாதம் பித்தம்
நாட்டுங் கபமே யாம் நாடு” -கண்ணுசாமியம்

Naadi is the main diagnostic scale of Siddha System. It can be felt at one inch below.The wrist on the radial lateral side by means of palpation with the tip of index, middle and ring finger correspondent to vadham, pitham and kabham. Normally these 3 vital forces exists in the ratio of 1:1/2:1/4. Derangement of this ratio leads to various diseases entities.

In Azhal Neer Churukku the following naadi nadai are seen commonly

1. Vadham

2. Pitham

3. Vadhapitham

4. Vadha Miguthiudan ushnam (Increased vadha naadi with combination of heat)

Vadham

“வாத மெனும் நாடியது தோன்றிற்…….

நிலையும் நீர்க் கிரிச்சரங்கள் தந்து மேகம்”- சதகநாடி

“மேவிய வாதஞ் செய்யும்……

……சிறத்துடன் சிறுநீர் விழும்”

-இரத்தினச் சுருக்க நாடி

Pitham

“ஏவலார் குழலாய் பித்தஞ் செய்குணம்……

……நீர்கடுத்து நொந்து”

-இரத்தினச் சுருக்க நாடி

Vadhapitham

“பொருளான வாத்ததில் பித்தஞ்சேர்ந்து……

……நீரிற் சிவப்பு” -சதக நாடி

Vadhathil ushnam

“சிறப்பான வாத்த்திலுட்ணந்தானே…….

…….. உண்டாகும் நீர்ச்சிறுப்புப் பிரமேகங்கள்″

-சதக நாடி

Sparisam:

Sparisam means touch. By touching the skin and various part of the body we can rule out any abnormalities.

Temperature of the skin, any abnormal growth, hypersensitivity, thickening of skin, swelling, ulcer etc.

In Azhal neerchurukku some patients have increased temperature & per rectal examination shows enlarged prostate.

Naa:

Inspecting the tongue for its colour, coating, pallor, dryness, ulceration etc.

In Azhal neerchukku the tongue may be dry or pallor.

Niram:

By examining the niram, the type of udal whether vadham (black), pitham (red (or) yellow) or kabham (white) or mixed,pallor and cyanosis of the body can be noted.

Mozhi (Speech)

It constitutes high (or) low pitched voice, Slurring and incoherent speech, nasal speech, hoarseness of voice.

Vizhi

Both motor and sensory disturbances of eye are noted. Burning of eyes, lacrimation, irritation, colour are also noted,

Malam

Quality, colour, odour, constipation, diarrhoea, presence of blood, undiagested matter etc. in the stools can be find out. In azhal neerchurukku some patients have constipation and stools examination may show ova and cyst.

Moothiram

“வந்தநீர்க் கரிஎடை மணம் நுரை எஞ்சலென்
றைந்தியலுளவவை யறைகுது முறையே”

-தேரர்நீர்குறி நெய்குறிநூல்

Neerkuri

Niram	-It indicates colour of urine.
Manam	-It indicates the smell of urine
Edai	-It indicates specific gravity of urine
Nurai	-It indicates frothy of urine.
Enjal	-It indicates quantity of urine.

In addition Azhal neerchurukku patients have frequency and burning micturition and some deposits are present.

Enjal -Some Azhal neerchurukkr patient have scanty urination

Niram -Azhal neerchurukku – yellowish (or) reddish discolouration of urine

Manam -Azhal neerchurukku – sometimes unpleasant (or) Ammonia odour.

இயற்கை நீர் இலக்கணம்

"மிகத் தடிப்பும் மிகத் தேறலும் இன்றெனில்
சுகத்தைத்தரும் மெய்ச்சுபாவ நீர் நன்றே"

-தேரர் நீர்க்குறி நெய்க்குறி நூல்

The normal urine must be in medium weight and moderate clarity.

In Azhal neerchurukku patient's urine show sometimes cloudy appearance.

சிறுநீர்ப்பை நாளப் புண்ணீர் மணம்:

"வெய்ய துர்கந்தம் வீசுநீர் மூத்திரப்
பைநாளமிவற்றைப் பற்றுபுண் குறியே
அம்மொழியின் றெனின்னிலமே முதலிய
மும்மலச் சுதமே மூலமென் றுணரே."

-தேரர் நீர்குறி நெய்குறி நூல்

Bladder & urethral ulceration causes unpleasant odourous urine.

குண்டிக்காய் துர்ப்பலம் நீர்

In neerchurukku the urine may be like flesh washed water. (Renal disorders)

"தீப்புலால் கழுநீர்ச் செய்லெனிற் குண்டிக்
காய்த்துர்ப் பலத்தால் கதித்த நீராமத்
துர்ப்பலக் கபமும் சோரியும் கொத்ப்புறப்
பற்பகலாகப் பையைப் பதிந்தே"

-தேரர் நீர்குறி நெய்குறி நூல்

Neikuri

"அருந்து மாறிரதம் அவிரோ தமதாய்
அக்கல் அலர்தல் அகாலவூண் தவிர்த்தழற்
குற்றள வருந்தி உறங்கி வைகறை
ஆடிக் கலசத் தாவியே காதுபெய்
தொரு முகூர்த்தக் கலைக்குட்படு நீரின்
நிறக்குறி நெய்குறி நிருமித்தல் கடனே"

-தேரர் நீர்குறி நெய்குறி நூல்

Method

Prior to the day of urine examination the patient is advised to take a balanced diet and the quantity of food must be proportionate to his appetite and he should have a good sleep. After waking up in the morning the first urine voided by the patient is collected in a glass container and is subjected to analysis within 1 ½ hours.A drop of gingerly oil dropped into container without shaking. The nature of the neikuri should be noticed in direct sunlight.

Observation

1. Vadhaneer

"அரவென நீண்டின் வாதம்"

When the drop of oil like a snake it indicates vadhaneer.

2. Pithaneer

"ஆழிபோற் பரவின் பித்தம்"

When the drop of oil spread like a ring it indicates pitha neer.

3. Kabha neer

"முத்தொத்து நிற்கின் மொழிவதன் கபமே"

When the oil drop remains as that of a pearl it indicates kabha neer

4. Thontha neer

"அரவிலாழியும் ஆழியில் அரவும்
அரவின் முத்தும் ஆழியில் முத்தும்
தோற்றில் தொந்த தோடங் களாமே"

When the drop of oil show two shapes enclosed within one another it indicates thontha neer.In Azhal neerchurukku neikuri spread like a ring and sometimes snake.

Thinai (Land and place)

The geographical distribution of the land is classified into five regions.

1. Kurinchi - Mountain and its surroundings
2. Mullai - Forest and its surroundings
3. Marutham - Field and its surroundings
4. Neithal - Sea and its surroundings
5. Palai - Desert and its surroundings

Each region has its own characters which influence the habitants, physical, mental, economic, occupational and cultural activities. In each region some aliments are endemic based on the climatic features. Prevention and curative measure for these ailments are stated in the medical literature.

Kaalm (season)

With reference to the position of sun, the year is divided into six seasons as follows.

1. Kaarkaalam - Avani and puratasi
2. Koothir kaalam - Aypasi and karthigai
3. Munpani kaalam - Margali and thai
4. Pinpani kaalam - Massi and panuguni
5. Elavenil kaalam - Chithirai and vaikasi
6. Muthuvenil kaalam - Aadi and avani

According to climatic conditions in every season, normally changes will occur in the land water, plants, animals, and human beings which will modify the physiology and make them susceptible to certain specific diseases on account of these changes, siddhars have Advised to follow certain measures in the form of diet, purgation, exercise etc, .to avoid the onset of disease.

Udal vanmai

Smartness, strength and vitally constitute udal vanmai. It is classified into three types.

1. Iyarkai vanmai - Inherited immunity by birth.

2. Kala vanmai - Vitality that is generally found in different age.

3. Cheyarkai vanmai - Improvement of vitality obtained by good habits, Physical exercise, proper diet and medicines.

Mukkutrangal

These are anatomical and physiological units of the body that is Vadham, Pitham, and Kabham. Vadham classified into 10 forms. Pitham and Kabham each are classified into five forms.

Vadham

The word vayu not only implied wind but also comprehense the phenomenon, which comes under the functions of the motor and sensory nerves system.

Ten types of vadham are,

1. Pranan	2.Abanan
3. Samanan	4.Viyanan
5. Uthanan	6.Nagan
7. Koorman	8.Kirukaran
9. Thevadhathan	10.Dhananjeyan

In Azhal neerchurukku abanan, samanan, uthanan, viyanan & thevathathan are affected.

Functions of Abanan.

“இருக்கவே யபானத்திம னியக்கங் கேளாய்
ஏற்றசுவா திட்டானத் துற்பத்தி யாகும்

மருக்கவே கீழ்நோக்கி மலசலந் தள்ளும்
வாகாக நிறந்தானும் பச்சையாகும்
அருக்கவே யாசனத்தைச் சுருக்கி வைக்கும்
அன்னசா ரத்தையெலாச் சேர வைக்கும்"
"நெளிந்திட்ட வாதமபானத்தைப் பற்றி
மணமான விந்துவிழ மலநீர் பெற்ற வழிகாட்டி"
-சித்த மருத்துவாங்கச் சுருக்கம்

It originates in the swadhistana & expels faecal matter & urine. It constricts the anal sphincter. It distribute the ingested food extracts to their respective places. It is also responsible for the expulsion of spermo & menstrual flow. Its derangement leads to disease of the bladder, rectum & reproductive system.Affected abanan produces burning micturition, pain in the external genitalia, painful micturition, flatulence and constipation in Azhal neerchurukku.

Functions of Viyanan.

Viyanan spreads all over the body in a nerve endings and cause constriction & relaxations of both voluntary and involuntary muscles.Affected viyanan produces urgency of urination, pain all over the body, (upper & lower limbs) in Azhal neerchurukku.

Uthanan.

It lies stomach and in the throat.

Azhal neerchurukku patient have dryness of tongue & nausea.

Samanan

It lies in the abdominal region especially around the umbilicus and acts as a neutralizing air for the upward & downward air.

In Azhal neerchurukku, flatulence, suprapubic pain may present.

Thevadhathan

It lies in the anus & external genitalia.

Pitham

“பிரிந்திடும் பித்தம் பேராஞ்சலத்தினில்” -திருமூலர்.

Pitham was excreted by urine.

Sites of pitham

Between the heart & naval, sweat, lymph, blood, urinary bladder, saliva, eye & skin.

Functions

Body temperature, digestion of food, colouring of skin and blood. Yellowish discolouration of urine, motion, skin etc. (excretions)

Types

1. Anal pitham
2. Ranjaga pitham
3. Sathaga pitham
4. Alosaga pitham
5. Prasaga pitham.

In some of the Azhal neerchurukku patients have pallor (Rnajaga pitham affected), Anorexia (Anal pitham affected) and Malaise (Sathaga pitham affected)

Kabham.

1. Avalampagam Helps in the functions of other kabhams
2. Kilethagam -Helps in digestion by moistening the food.
3. Podhagam -Helps in knowing different tastes
4. Tharpagam -gives cooling sensation to the eye
5. Santhigam -Helps in movement of the joints by providing lubrication.

Seven udal thathukkal:

They are basic principles, which constitute the entire body.

1. Saram 2.Senneer
3. Oon 4.Kozhupu
5. Enbu 6.Moolai
7. Sukkilam/suronitham

In Azhal neerchurukku saram, senner are affected

Saram affected - Tiredness, Malaise

Senneer affected - pallor (Anaemia)

Prognosis

According to yougi vaithiya chinnthamani

மேகத்தின் கிரிச்சந்தான் பித்த கிரிச்சம்

மிகவிரண்டு குணமாகி விரைந்து போகும்

தேகத்தில் இதுரெண்டு சாத்தி யமாகிச்

செயமான மருந்தினாற் றிரும்ப லாகும்

வாத்தின் வாதமு மூத் திர கிரிச்சம்

மருவுகின்ற சேத்தும்மூத் திரக் கிரிச்சம்

பாத்தி னிதிரண்டு மசாத்ய மாகும்

பாடுபட்டுந் தீராது பரிந்து பாரே"

-யூகி வைத்திய சிந்தாமணி

Azhal and Mega neerchurukku can be cured easily

Vadham and Kabham neerchurukku cannot be cured easily

Treatment:

Siddha system classifies treatment as follows.

Kappu (Prevention)

Neekam (Treatment)

Niraivu (Restoration of well beings)

Neekam:

A good physician should know about the derangement of kuttram and should treat the patient on the basis of altered kuttram.

Treatment is based on

1. To bring the tridosham to normal.
2. To treat the disease according to its symptoms through medicines.

To normalise tridhosam

“விரேசனத்தால் வாதம் தாழும்
வமனத்தால் பித்தம் தாழும்
நசிய அஞ்சனத்தால் கபம் தாழும்”

Vadha diseases can be brought down by viraesanam, by giving laxative and purgatives according to the patient condition

Pitha diseases - Giving vamanam(Emetic)

Kabha diseases -Anjanam and Nasiyam (Nasal drops)

In Azhal neerchurukku first vadham is affected then if coupled with pitham.So laxative is administered on the previous day before starting the neerchurukku medicines.

Pathiyam:

During the course of treatment, patient is advised to take following items regarding diet and physical activities. This form of medical advice in Siddha system of medicine is termed as PATHIYAM which is very important in siddha system of medicine.

Pathiyam for neerchurukku

அதிமதுரஞ் சிறுநாணலுந் தெற்பையு
மரிய நெரிஞ்சில் துரா
யானை நெருஞ்சில் கரும்பொடு சந்தன
மாவதின் நெய் பாலும்
மதியுறு சூரியகாந்தியும் பூசணி
வங் கமதின் பற்பம்
மகிழ்பூ சிறுகீரையு நெல்லியு
மணலியுங் கவு தும்பை
விதியுறு தேற்றான் வித்தோடு முந்திரி
வெள்ளரி யிளநீரும்
வெள்ளறுகுட நீர்முள்ளி பொன்னாங்காணி
மேவிய மரமஞ்சள்

முதிருறு சீந்திலுமேல் முடன்னீர்

முத்தமு நிம்பஞ் சர்க்கரையாவும்

முட்டான் பிரமியது

மூத்திரக் கிரிச்சர ஹரமே”

-நோய்களுக்கு சித்த பரிகாரம்

II.According to Agathiyar Gunavagadam

“கேளடா போசனத்தைக் கிரமமாய்ச் செய்து

கொடிதான உஷ்ணத்தின் பதார்த்தம் தள்ளு

நாளடா சாராயம் முதலாயுள்ள்

நலங்கெட்ட வஸ்து வெல்லாந் த்ள்ளிப்போடு

தேளடா அயமுதல் குளிரக் கரியான்

தெளிவான தேத்தான் நெய் முதலாயுள்ள

வாளடா வளமைகண்டு ரிய்ந்தாயானால்

வலுவற்று ரோகந்தான் நீங்கிப் போமே” -பக்கம்-69

1. Timely meals
2. Avoid hot food substances
3. Avoid liquor, smoking etc.
4. To give iron preparation.

III.According to Anupava Vaithiya Deva Ragasiyam

பழைய சிகப்பு அரிசி	பசுமோர்
பசுநெய்	பசும்பால்
பச்சைப்பயிறு	சர்க்கரை
கல்யாண பூசணிக்காய்	புடலங்காய்
சுக்கு	நெருஞ்சில்
கற்றாழை	முள்ளுவெள்ளரிகாய்
கர்சூரம்	தேங்காய்
நுங்கு	தர்பூசணிப்பழம்

ஏலக்காய் சீதளமானஅன்னபானங்கள்

ஆற்று ஜலம் பச்சைகற்பூரம் -பக்கம்-531.

Apathiyam

During treatment. The patients are advised not to take following items regarding diet and physical activities.

கள் குடித்தல் அதிக உழைப்பு

மாதரின் புணர்ச்சி குதிரை சவாரி

விருத்தமான விஷம்மான அன்னம் தாம்பூலம்

மீன் உப்பு

இஞ்சி எள்ளு

கடுகு உளுந்து

மூத்திரத்தை அடக்குதல் அதிதீஷ்ணம்

அதிபுளிப்பு

Kappu (Prevention)

“முக்கால் மலமது பொல்லாத வாயுவு மூன்று தும்மல்

சிக்கா மலாறு சலதாரை விட்டுச் சிறுநடையும்

மைக்காடு கொண்ட விழியாய் மனிதர்க்கு

வாய்ப்பதெனில்

எக்கால மும்பிணி வாராத காயமிரும் பொக்குமே”

-சித்த மருந்துவாங்கச் சுருக்கம்

Evacuate stools 3 times/day and excrete urine 6 times/ day.

If anyone holds urine and semen for a long times it will end in Neerchurukku

“நீரினைத் தடுத்தல் செய்யின்

நீர்க்கட்டுத் துவாரம் புண்ணாம்”

“சுக்கிலந் தனையடக்கின்

சுரமுட னீர்க்கட் டாகும்”

-சித்த மருத்துவாங்கச் சுருக்கம்

Niraivu

Reassurance is given to all patients for speedy recovery

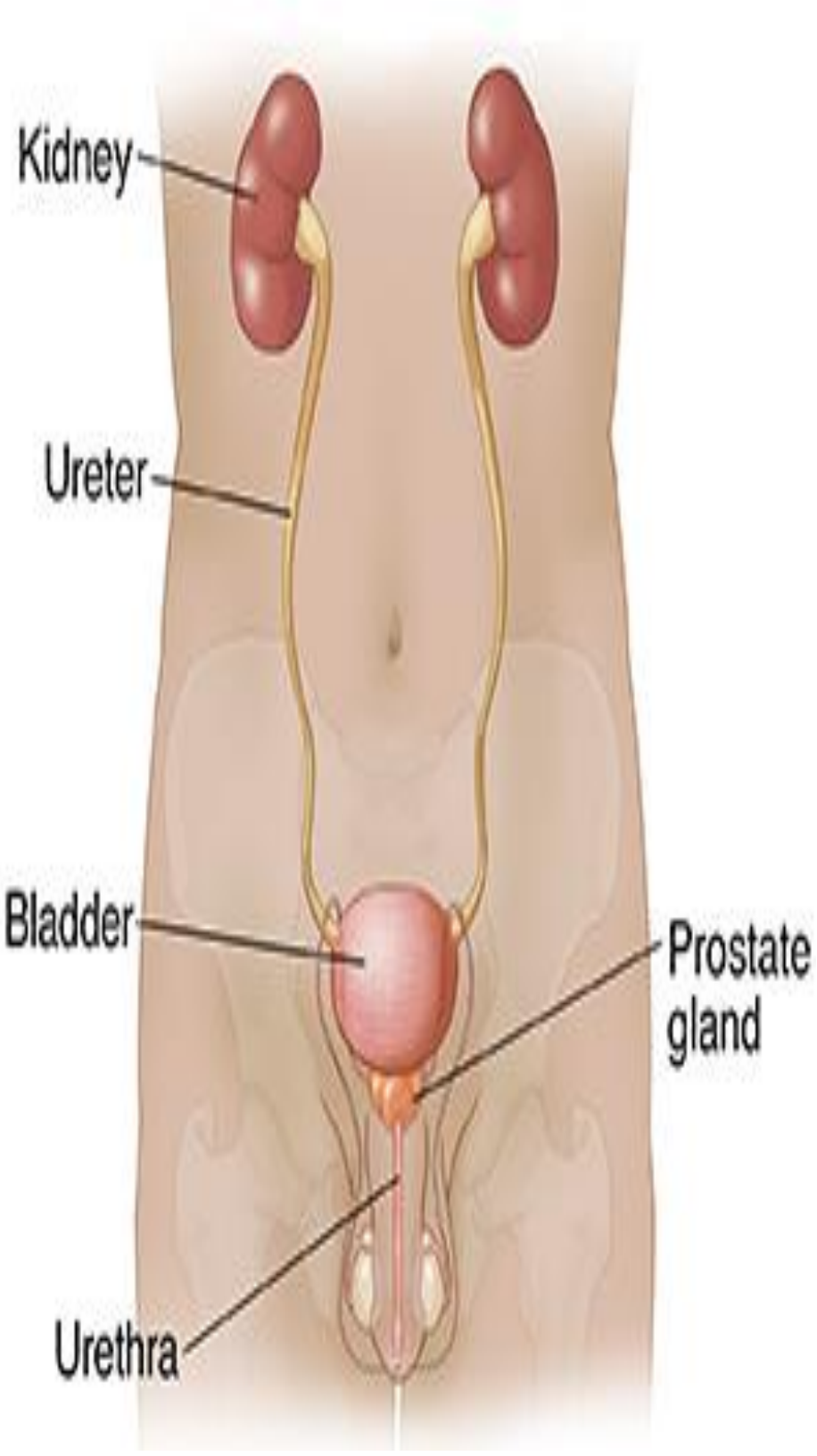
All of them are advised to live in a good morality

நோய்கள் அசாத்தியமாயினும் குணமாக வேண்டின்
இவ்விதிகளை அனுசரிக்க வேண்டும்:
பற்றுநோய் தீரவென்றால் தருமம் வேண்டும்
பாங்கான குணம் வேண்டும் வணக்கம் வேண்டும்
சித்திரமாய் அவுட்தங்கள் செய்ய வேண்டும்
செய்மருந்து சுத்தி வேண்டும், பத்தியம் வேண்டும்
முத்திபெறும் வைத்தியன்மேல் கிருபை வேண்டும்
முன்னோர்கள் நூல்முறைபோல் நடக்க வேண்டும்
புத்தியுடனிப்படியே நடந்தபேர்க்குப்
பிணி தீருமென்று மனம் பொருந்திச் சொல்லே”

-சதகநாடி

MODERN ASPECT

URINARY SYSTEM



MODERN ASPECT

ANATOMY OF THE URINARY TRACT

Urinary tract is divided into

Upper urinary tract

Lower urinary tract

Upper urinary tract consist of
1. Kidney
2. Abdominal part of ureter

Lower urinary tract consist of
1.Pelvic part of ureter
2. Bladder
3. Urethra

KIDNEY

The kidneys are a pair of excretory organs. They have exocrine and endocrine functions. The endocrine function is done by the secretion of a hormone called renin. They remove waste products of metabolism and excess of water and salts from the blood and maintain its PH.

SHAPE AND SIZE:

Each kidney is bean shaped and has two poles (upper and lower) two borders (medial and lateral) and two surfaces (anterior and posterior). Each kidney is 7.5cm in length, 5cm in breadth and 2.5cm in thickness. Each kidney weight about 120 to 150 gms.

SITUATION:

They are situated on the posterior abdominal wall, on either sides of the lumbar vertebral column. They are situated below the liver but above the umbilicus. It occupies epigastric, hypochondrium,

Lumbar and umblical regions. It extend from the upper border of vertebra T_{12} to the centre of the body of vertebra L_3. Right kidney is slightly lower than the left, and the left kidney is a little longer and narrower than the right kidney.

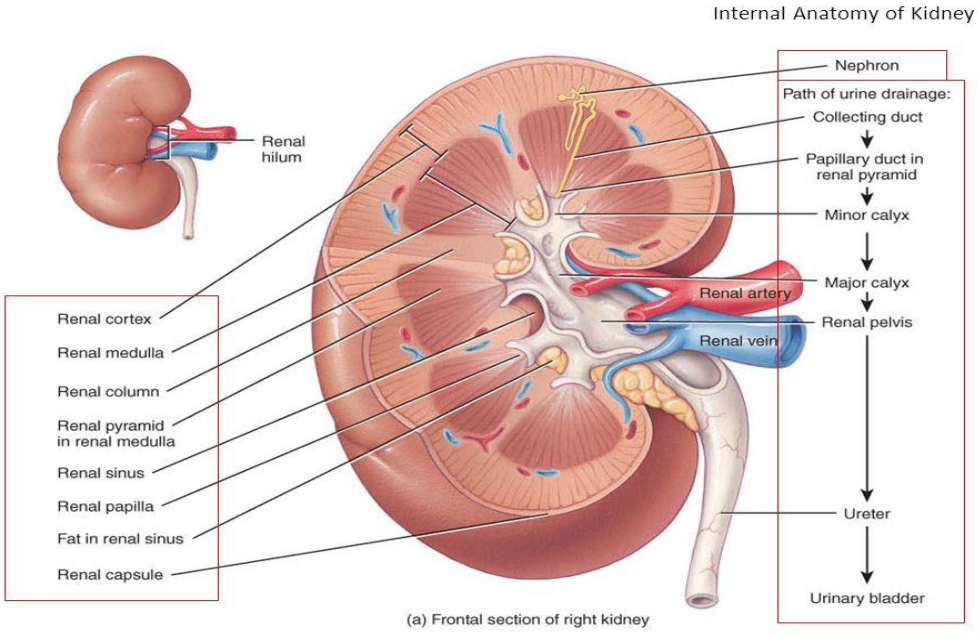
CAPSULES OF THE KIDNEY:

1. False capsule (renal fascia): It is the continuation of the tranversalis fascia. It splits at the lateral border of the kidney into an anterior and posterior layers. Between these two layers the perirenal space is present. This space is filled with the fat.

2. Fatty capsule: Fatty capsule is found within the renal fascia. Fatty capsule is thickest at the periphery and formed by the perinephric pad of fat.

3. True capsule (Tunica albugenia): this capsule is made up of connective tissue. During diseases of the kidney it cannot be stripped off from the organ.

LONGITUDINAL SECTION OF THE KIDNEY:



When cut longitudinally, kidney shows an outer cortex and inner medulla with an ill-defined boundary line between the two. Medulla is divided into 12 -14 conical portion called the pyramids of malphigi, the bases of which are in contact with cortex, and the apex projects in the form of papilla in to calyces (minor and major), which opens in to the dilated commencement of the ureter at the pelvis of the kidney. Between the bases of the pyramids, the cortex dips down to form the renal columns of bertini. The structural and functional unit of the kidney is the nephron. Each kidney has over a million of nephrons. The length of the nephron varies from about 4- 6.5 cms. Nephron has,

Renal corpuscle

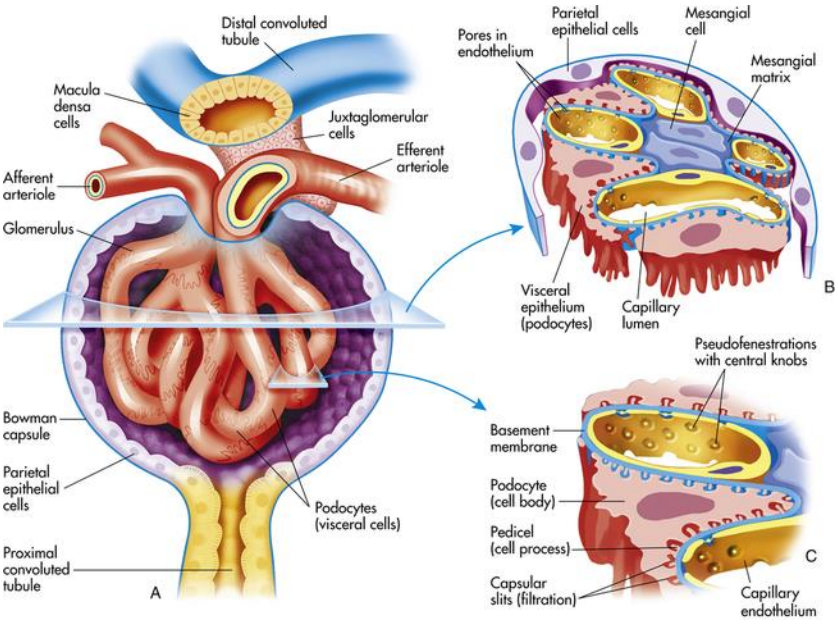
Proximal convoluted tubule

Loop of Henle

Distal convoluted tubule

Collecting duct.

JUXTA GLOMERULAR APPARATUS:



It is formed by 3 different structures.

1. Macula densa: The end portion of thick ascending segment in each nephron runs in between afferent & efferent arterioles of the some nephron.

2. Extra glomerular mesangial cells or Lacis cells: These cells are situated in the triangular region bound by different arteriole, efferent arteriole and macula densa. These cells are phagocytic and secrete prostaglandins and cytokines.

3. Juxtaglomerular cells: The wall of the afferent arteriole, before entering the glomerulus is thickened like a cuff. The cells forming this are called juxtaglomerular cells. Juxtaglomerular apparatus secrete a hormone called Renin.

RENAL VASCULATURE AND LYMPHATICS:

A single large renal artery, a lateral branch of the abdominal aorta, supplies each kidney.

As each renal artery approaches the renal hilum, it divides into anterior and posterior branches, which supply the renal parenchyma. Accessory renal arteries are common. They originate from the lateral aspect of the abdominal aorta, either above or below primary renal arteries, enter this hilum with the primary arteries or pass directly into the kidney at some other level, and are commonly called extra hilar arteries.

Multiple renal veins contribute to the formation of the left and right renal veins, both of which are anterior to the renal arteries.The lymphatic drainage of each kidney is to the lateral aortic (lumbar) nodes around the orgin of the renal artery.

NERVE SUPPLY:

Renal Plexus and branch of the coeliac plexus. It contains sympathetic (T10- L_1) fibers which are chiely vasomotor. The afferent nerves of the kidney belong to segments $T_{10} – T_{12.}$

URETERS

The ureters are a pair of narrow, thick walled muscular tubes which convey urine from the kidney to the urinary bladder. They lie deep to the peritoneum, closely applied to the posterior abdominal wall in the upper part, and to the pelvic wall in the lower part.

Dimension:

Each ureter is about 25cm (10 inch) long of which the upper half lies in the abdomen and the lower half lies in the pelvis. It measures about 3mm in diameter hut it is slightly constituted at three places.They are continuous superiorly with the renal pelvis, which is a funnel shaped structure in the renal sinus. The renal pelvis is formed from a condensation of two or three major calices, which in turn are formed by the condensation of several minor calices. The minor calices surround a renal papilla.

Parts of ureter:

1. Abdominal Part:

It begins from the pelvis of kidney, run downwards, terminates with the pelvic part of the ureter. Its length about 12.5cm

2. Pelvic Part:

In female it forms the posterior boundary of the ovarian fossa. About 2cm lateral to the cervix, it possess between the uterine and vaginal arteries. The ureter crosses anterior to the vagina before opening into the bladder. The left ureter is found within the intersigmoid recess while entering the pelvis. In male, the ureter is crossed by the vasdeferens

3. Intra mural Part:

Within the bladder wall it is about 2cm long. It runs obliquely. It opens as the superolateral angle of the trigone of the bladder. In an empty bladder, the distance between the 2 ureteric openings will be 2.5cm. When the bladder is full the interaureteric distance is 5cm.

Constrictions of the ureter:

There are three main constrictions in the ureter,

1. At Pelvi ureteral junction
2. at the brim of the lesser pelvis
3. Where ureter pierces the bladder wall.

URETERIC VASCULATURE AND LYMPHATICS:

The ureters receive arterial branches from adjacent vessels as they pass towards the bladder.

Renal arteries- supply the upper end

The middle part may receive branches from the abdominal aorta, the testicular or ovarian arteries, and the common iliac arteries.

Lymphatic drainage of the ureters follows a pattern similar to that of the arterial supply,

Upper part- each ureter drains to the lateral aortic nodes.

Middle part- each ureter drains to lymph nodes associated with the common iliac vessels.

Inferior part- each ureter drains to lymph nodes associated with the external and internal iliac vessels.

Nerve supply:

The ureter is supplied by sympathetic (T10- L_1) and parasympathetic (S_2- S_4) nerves. They reach the ureter through the renal. Aorta and hypogastric plexuses. All the nerves appear to be sensory in function.

THE URINARY BLADDER

The urinary bladder is a muscular reservoir of urine, which lies in the anterior part of the pelvic cavity. It is developed from the upper part of the urogenital sinus. It is the temporary store house of urine which gets emptied through the urethra.

It is varies in size, shape and position according to the amount of urine it contains, and the age of the person. When empty it lies within the pelvis. But as it fills it extends upwards into the abdominal cavity reaching upto the umbilicus or even higher.

External features:

An empty bladder is tetrahedral in shape and has

An apex-directed forwards

Base or fundus- directed backward

A neck- which is the lowest and most fixed part of the bladder

Three surfaces- superior and right and left inferolateral

Four borders- two lateral and anterior and one posterior.

Interior of the bladder:

In a small triangular area over the lower part of the base of the bladder, the mucosa is smooth due to its firm attachment to theMuscular coat. This area is known as trigone of the bladder. The ureter open at the posterolateral angels of the trigone. The base of the trigone is formed by the interaureteric ridge produced by the continuation of the inner longitudinal muscle coats of the 2 ureters the ridge extends beyond the ureteric opening as the ureteric folds over the interstitial parts of the ureters.

Capacity of the bladder:

Mean capacity is an adult male – 220 ml (varying from 120-320ml)

Filling beyond 220ml causes a desire to micturate.

Filling upto 500ml – may be tolerated. But it becomes painful referred pain is felt the lower part of the anterior abdominal wall, perineum and penis.

Ligaments of the bladder:

I.True ligaments:	1.Lateral true ligament
	2. Lateral puboprostatic ligament
	3. Medial puboprostatic ligament
	4. Medial umbilical ligament
	5. Posterior ligament
II.False ligaments:	1.Median umbilical fold
(Peritoneal folds)	2. Medial umbilical fold
	3. Lateral false ligament
	4. Posterior false ligament.

Arterial supply:

1. Superior and Inferior vesical arteries
2. Obturator and Inferior gluteal arteries.

Venous drainage:

Internal iliac vein

Lymphatic drainage:

Internal and external iliac nodes

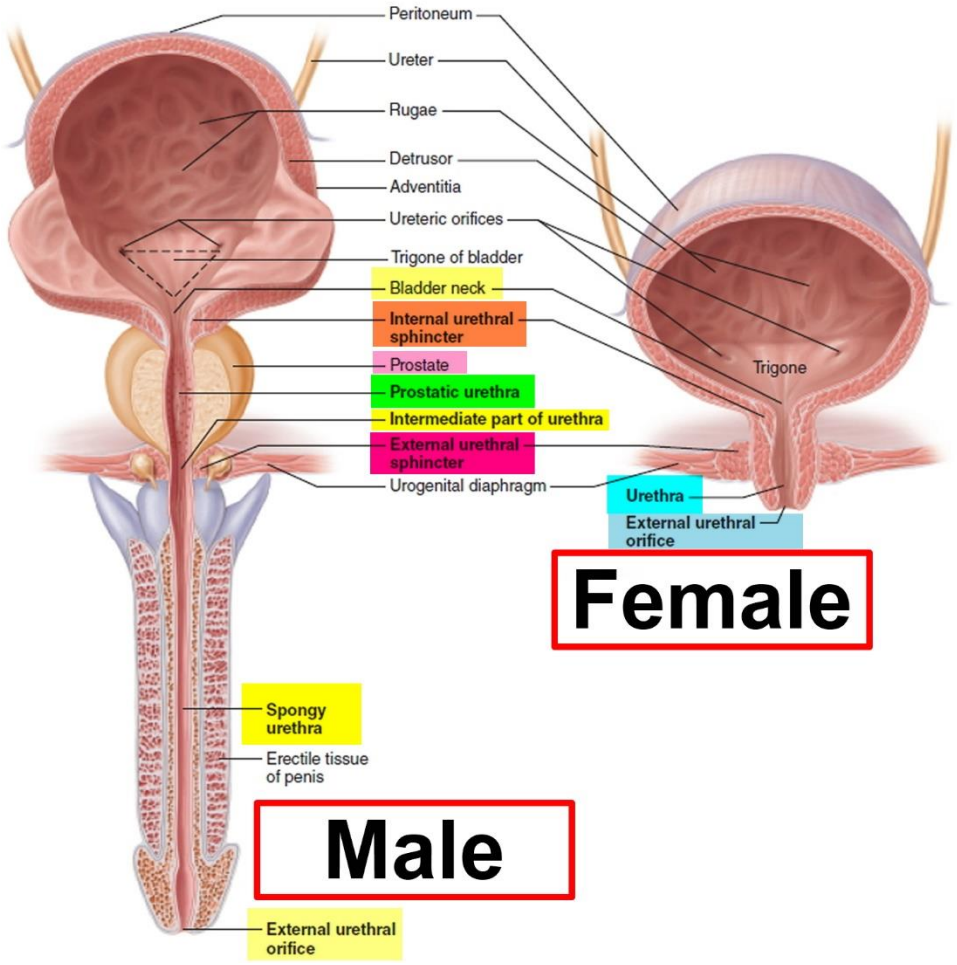
Nerve supply;

1. Parasympathetic efferent fibres or nervi erigentes (S_2, S_3, S_4,)
2. Sympathetic efferent fibers (T_{11} to L_2)
3. The somatic Pudendal nerve (S_2, S_3, S_4)
4. Sensory nerve

Relations:

Female	Superior- Uterus
	Inferior- Urethra
Male	Posterior- Seminal Vesicles
	Vasdeferns
	Rectum

URETHRA



FEMALE URETHRA

The female urethra is only 4cm long and 6mm in diameter.it begins at the urethral orifice, at the neck of the urinary bladder roughly 5cm behind the middle of the pubic symphysis. It runs downwards and forwards embedded in the anterior wall of the vagina, transverse the urogenital diaphragm, and ends at the external urethral orifice in the vestibule. The female urethra is easily dilatable, and catheters or cystoscopies can be easily passed through it.

Cross section of female urethra:

Most of its lining consists of stratified squamous epithelium through further up it is transitional. Deeper to the mucosal layer are veins, connective tissue and smooth muscle. In cross section it is cresentic in the upper part, stellate in middle part and transverse in the lower part. The external urethral orifice is a sagittal slit with 2 lips.

The mucosa of the urethra is much folded and contains numerous mucous glands and lacunae which open into the urethra. The collections of mucous glands one on each side of the upper part of the urethra are called the Para urethral glands (skene). These glands are homologous with the male prostate. These glands are the sites for harbouring and occasional development of benign adenoma or malignant changes.

Blood supply:

Proximal part of urethra is supplied by Inferior vesical branch and distal part is supplied by internal pudendal artery. The veins drain into the vesical plexus and into internal pudendal veins.

Lymphatic drainage:

Superficial inguinal glands drain into internal and external iliac group of glands.

Nerve supply:

Pudendal nerve.

THE MALE URETHRA

Male urethra is a membranous canal for the external discharge of urine and seminal fluid. It is extends from the internal orifices at the neck of the urinary bladder to the external urethral orifice at the tip of the penis.

The male urethra is 18 – 20 cm long.

Parts of urethra:

The Prostatic part passes through the prostate. (Length- 3cm).

The Membranous part is surrounded by the sphincter urethrae (Length- 1.5 to 2cm)

The Spongy or Penile part passes through the bulb and corpus spongiosum of the penis. (Length – 15cm).

Prostatic urethra:

Dilatable and widest part of male urethra. In cross section it is semilunar in outline. The prostate gland is divided in to lobes by urethra and is widest in the centre.

Features:

1. Colliculus seminalis;

It is situated on the posterior wall of prostatic urethra on the summit of the colliculus seminalis, there is an opening for the prostatic utricle. The prostatic utricle represents the uterus. Hence it may be called uterus musculinus. The ejaculatory ducts open on either sides of the prostatic utricle.

2. Urethral crest:

The mucous membrane is elevated into ridges above and below the colliculus seminalis. This is called urethral crest.

3. Urethral sinus:

On either sides of the urethral crest a depression called urethral sinus is situated. The duct of the glands of prostate are opening into this sinus.

Membranous Urethra:

It is situated in deep perineal pouch. It extended from the apex of prostate to the bulb of the penis. It pierces the perineal membrane about 2cm posterior to the pubic symphysis. It is surrounded by the sphincter urethra.

Spongy urethra (Penile part of the Urethra)

It has a fixed part, narrow, with a uniform diameter of about 6mm. it runs forwards and upwards on the bulb of the penis. Free part which lies in the corpus spongiosum. It terminates at the external urethral orifice situated at tip of the glans penis.

The penile urethra is provided with numerous mucous glands. The secretions of these glands may help as a lubricant for the urine. The secretions also protect the lining mucous membrane of the urethra. There are pits or lacuna found within the spongy part. The largest depression is called "Lacuna Magna". This lacuna is situated along the dorsal wall of the terminal part of the urethra

Sphincters of Urethra:

1. The internal urethral sphincter or sphincter vesicae is involuntary in nature. It is supplied by sympathetic nerves, from lower thoracic and upper lumbar segments of spinal cord.

2. The external urethral sphincter or sphincter urethrae is voluntary in nature. It is made up of striated muscle fibres and is supplied by the perineal branch of the pudendal nerve. (S2 to S_4).

Blood supply:

Internal pudendal artery

Urethral artery to the bulb of penis

Middle rectal artery

Inferior vesicle artery

Vein accompany the arteries.

Lymphatic drainage:

Prostatic part, Membranous part – Internal and External iliac nodes.

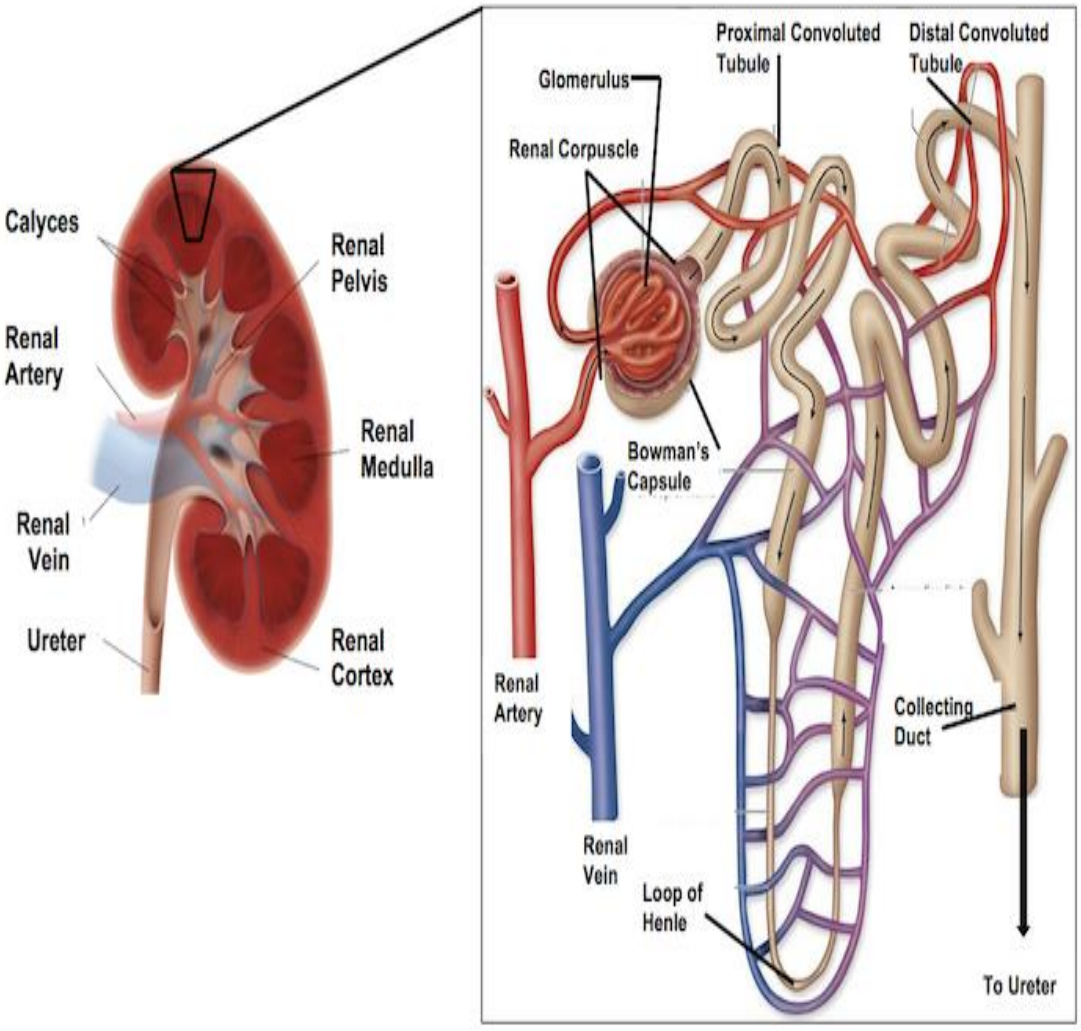
Penile part – Deep inguinal nodes.

PHYSIOLOGY

Functions of the Kidney:

The kidneys form urine which passes through the ureters to the bladder for excretion. The composition of urine reflects the activities of the nephrons in the maintenance of homeostasis. Waste products of protein metabolism are excreted. Electrolyte balance is maintained. Acid base balance is influenced by the excretion of hydrogen ion.

Urine formation:



Kidney excrete the unwanted substances including metabolic end products and those substances, which are present in excess quantity in the body, through urine. Normally about 1 to 1.5 litres of urine is formed every day. The mechanism of urine formation includes various processes.

When blood passes through glomerular capillaries, the plasma is filtered into the Bowman's capsule. When this filtrate passes through the tubular portion of the nephron, it undergoes various changes both in quality and quantity. Many wanted substances like glucose, amino acids, water and electrolytes are reabsorbed from the tubules. This process is called tubular reabsorption.

Some unwanted substances are secreted into the tubule from peritubular blood vessels. This process is called tubular secretion or excretion.

There are three phases in the formation of urine,

I.Glomerular filtration

II.Tubular reabsorption

III.Tubular secretion

I.Glomerular Filtration:

Filtration takes place through the semipermeable walls of the glomerulus and glomerular capsule. Water and large number of small molecules pass through, some of which are reabsorbed later. Large molecules are unable to filter through and remain in the capillaries. About 180 litres of dilute filtrate are formed each day by the two kidneys. Of these 1- 1.5 litre are excreted as urine.

Glomerular Filtration Rate (GFR):

Glomerular Filtration Rate (GFR) is the total quantity of filtrate formed in all the nephrons of both the kidneys in the given unit of time. The normal GFR is 125 ml per minute or about 180 litres per day.

Pressures determining filtration:

1. Glomerular capillary pressure:

It is the pressure exerted by the blood in the glomerular capillaries. It is about 60 mmHg and varies between 45 and 70 mmHg. Glomerular capillary pressure is the highest capillary pressure in the body. This pressure favours glomerular filtration.

2. Colloidal osmatic pressure:

It is exerted by plasma protein in the glomeruli. The plasma protein are not filtered through the glomerular capillaries and remain in the glomerular capillaries. These proteins develop in colloidal osmatic pressure which is about 25 mmHg. It opposes glomerular filtration.

3. Hydrostatic Pressure in Bowman's capsule:

It is the pressure exerted by the filtrate in Bowman's capsule during filtration. It is also called capsular pressure. It is about 15 mmHg. It also opposes glomerular filtration.

II.Tubular Reabsorption:

It occurs in the convoluted tubules, the loop of henle and the collecting tubule. The general purpose of this process is to reabsorb those filtrate constituents needed by the body to maintain fluid and electrolyte balance and blood alkalinity.

Some constituents of glomerular filtrate do not normally appear in urine because they are completely reabsorb unles they are present in blood in excessive quantity. The Kidney's maximum capacity for reabsorption of a substance is the transport maximum

eg. Normal blood glucose level is 45 – 95 mg/100ml. if the level rise above the transport maximum of about 160 mg/100ml, glucose appears in the urine because the mechanism for active transfer out of the tubules is over loaded.

In some cases reabsorption is regulated by hormones. Paratharmone from the parathyroid glands and calcitonin from the thyroid gland together regulate reabsorption of calcium and phosphate.

Antidiuretic hormone (ADH) from the posterior lobe of the pituitary gland regulating water reabsorption. Aldosterone secreted by the cortex of the adrenal gland, influences the reabsorption of sodium and excretion of potassium. Waste products, such as urea and uric acid are reabsorbed only to slight extent.

Routes of reabsorption:

There are two routes for the substances to be reabsorbed from tubular lumen into the peritubular capillary called transcellular and paracellular routes

» Trans cellular Route includes;

1. Transport from tubular lumen into tubular cell through apical (luminal) surface of the cell membrane.
2. Transport from tubular cell into interstitial fluid.
3. Transport from interstitial fluid into capillary

» Paracellular Route includes;

1. Transport from tubular lumen into interstitial fluid present in lateral intercellular space through the tight junction between the cells.
2. Transport from interstitial fluid into capillary.

Site of reabsorption:

The reabsorption of the substances occurs in almost all the segments of tubular portion of nephron.

1. Substances Reabsorbed from Proximal Convoluted Tubule:

Glucose, amino acid, sodium, potassium, calcium, bicarbonates, chlorides, phosphates, uric acid and water are reabsorbed from proximal convoluted tubule.

2. Substances Reabsorbed from Loop Of Henle:

The substances reabsorbed from loop oh henle are sodium and chloride.

3. Substances Reabsorbed from Distal Convoluted Tubule:

Sodium, bicarbonate, and water are reabsorbed from distal convoluted tubule.

III.Tubular secretion:

Substances not required and foreign materials eg drugs, may not be cleared from the blood by filtration because of the short time it remains in the glomerulus. Such substances are cleared by secretion into the convoluted tubules and passed from the body in the urine.

Substances secreted in different segments of renal tubules:

1. Potassium is secreted actively by sodium-potassium pump in proximal and distal convoluted tubules and collecting ducts.
2. Ammonia is secreted in proximal convoluted tubules.
3. Hydrogen ions are secreted in the proximal and distal convoluted tubules. Maximum hydrogen ion secretion occurs in proximal tubules.

Thus urine is formed in the nephron by the process of glomerular filtration, selective reabsorption and tubular secretion.

Normal constituents of urine:

Urine is the product of activities of kidneys. Through the urine waste products are excreted.

Volume – 1 -1.5 litres per day. The quantity of urine is variable according to the quantity of fluid and food intake. Exercise reduces the volume of urine.

Reaction – Usually acidic in nature. An average PH is 0.6 but PH range of from 4.8 – 7.5. It may be variable according to the type of diet.

Specific gravity – 1.008 – 1.030. But usually it is within the limits of 1.015 – 1.025.

Colour – Fresh urine is slightly yellow or straw coloured or amber yellow. This is due to the presence of urochrome.

Odour – Aromatic in odour. A putrid or strongly ammonical odour points to decomposition by bacteria, probably occurring in the urinary bladder.

Turbidity – Clear and transparent when voided. On standing faintly cloudy flocculence.

Principle constituents of urine of normal adult (amount per 24 hours)

Water – 95%

Inorganic constituents

Cations:

Sodium – 1 – 6 g

Potassium – 1.5 – 3g

Ammonium ($NH4^{+}$) – 1.0 -1.8g

Calcium – 0.2 – 0.5g

Magnesium – 0.1 – 0.2g

Anions:

Chloride – 6.0 – 9.0g

Inorganic (SO_4) – 0.6 – 1.8g

Phosphate – 0.7 – 1.6g

Bicarbonate - -

Organic constituents:

Nitrogenous – 20 -40g

Urea – 18 – 35g

Creatinine – 1.0 – 1.8g

Creatinine – 0.06 – 0.15g

Ammonia – 1.0 -1.8g

Amino acids – 0.8 – 2.5g

Uric acid – 0.3 – 1.0g

Protein - < 0.1g

Enzymes:

Trace of many enzymes are excreted in the urine. Eg pancreatic amylase, pepsin, trypsin and lipase.

Hormones:

Hormones like sex hormones are found in the urine. The pregnancy test is depending on the hormonal excretion in the urine.

Abnormal constituents of urine:

Protein

Sugar

Acetone

Bile pigments

Bile

Blood

Porphyrin

Urobilin.

URINARY TRACT INFECTION

INTRODUCTION:

Bacterial colonization of the urine within this tract (bacteriuria) is common and can at times result in microbial invasion of the tissues responsible for the manufacture, transport, and storage of urine. Infection of the upper urinary tract, consisting of the kidney and its pelvis, is known as pyelonephritis. Infection of the lower tract may involve the bladder (cystitis), urethra (urethritis), or prostate (prostitis), the genital organ that surrounds and communicates with the first segment of the male urethra. Because all portion of the urinary tract are joined by a fluid medium, infection at any site may spread to involve other areas of the system.

EPIDEMIOLOGY:

Urinary Tract Infection is most common during the first year of life and is more common in young girls, except in neonates where UTIs in male predominate. Lowest rates are seen in 11 – 15 year olds. The incidence of infection increases in young adults women where sexual activity is an important contributory factor and increase again in old age. Indeed around 20% of women develop a urinary tract infection during their lifetime only after the age of 50 years is a similar incidence seen in males. Twenty three per cent of all health care associated or nosocomial infections are urinary tract infections.

UTI is among the most common of disease, particularly among women. Prevalence is age and sex dependent. Approximately 1% of children, many of whom demonstrate functional or anatomic abnormalities of urinary tract, develop infection during the neonatal period. It is estimated that 20% or more of the female population suffers some form of UTI

in their lifetime. Infection in the male population remains uncommon through the fifth decade of life, when enlargement of the prostate begins to interfere with emptying of the bladder. In the elderly of both sex, gynaecologic or prostatic surgery, incontinence, instrumentation, and chronic urethral catheterization push UTI rates to 30% to 40%. A single bladder catheterization carries an infectious risk of 1% and at least 10% of individuals with indwelling catheters become infected.

PATHOGENESIS:

These organisms are create access are varied, but the most important is sexual intercourse, which has been shown to transiently displace bacteria into the bladder. This puts the female partner at risk because of short urethral distance. In male infants, UTIs are common in the uncircumcised, and this is associated with colonization of the prepuce and urethra with faecal organisms.

Main causes of obstruction to complete bladder emptying;

Pregnancy

Prostate hypertrophy

Renal calculi

Renal tumour

Strictures

When there is a residual urine of more than 2 -3ml, infection is more likely. Infection, superimposed on urinary tract obstruction, may lead to ascent of infection to the kidney and rapid destruction of renal tissue.

Loss of neurological control of the bladder and sphincters (eg. In spina bifida, paraplegia or multiple sclerosis), and the resultant large residual volume of urine in the bladder, causes a functional obstruction to urine flow, and such patients are particularly prone to recurrent infections.

Vesicoureteral reflux (reflux of urine from the bladder cavity up the ureters, sometimes into the renal pelvis or parenchyma) is common in children with anatomic abnormalities of urinary tract and many predispose to ascending infection and kidney damage. Reflux may also occur in association with infection in children without underlying abnormalities, but tends to disappear with age.

People with diabetes mellitus may have more severe UTIs and if diabetic neuropathy interfere with normal bladder function, persistent UTIs are common.

Catheterization is a major predisposing factor for UTI:

During insertion of the catheter, bacteria may be carried directly into the bladder and while in situ, the catheter facilitates bacterial access to the bladder either via the lumen of the catheter or by tracking up between the outside ot the catheter and the urethral wall. The catheter disrupts the normal bladder's productive function action and allow bacteria to get a foothold. Thus duration of catheterization is directly associated with increased probability of infection i.e risk of UTI increases by about 3-5% each day of catheterization.

ETIOLOGY:

Over 95% of UTIs are caused by Gram negative rods, and 90% of these are *E coli*. Other *Enterobacteriaceae, Psudomonas,* and Gram positive bacteria become increasingly common with chronic, complicated, and hospitalized patients. Of the Gram positive bacteria enterococci are the most important. *Staphylococcus saprophyticus*, a coagulase negative staphylococcus, is now recognized as the cause in a significant minority symptomatic infection in young, sexually active women. Yeast particularly species of *Candida,* may be isolated from catheterised patients receiving antibacterial therapy and from diabetic individuals, but they seldom produce symptomatic disease.

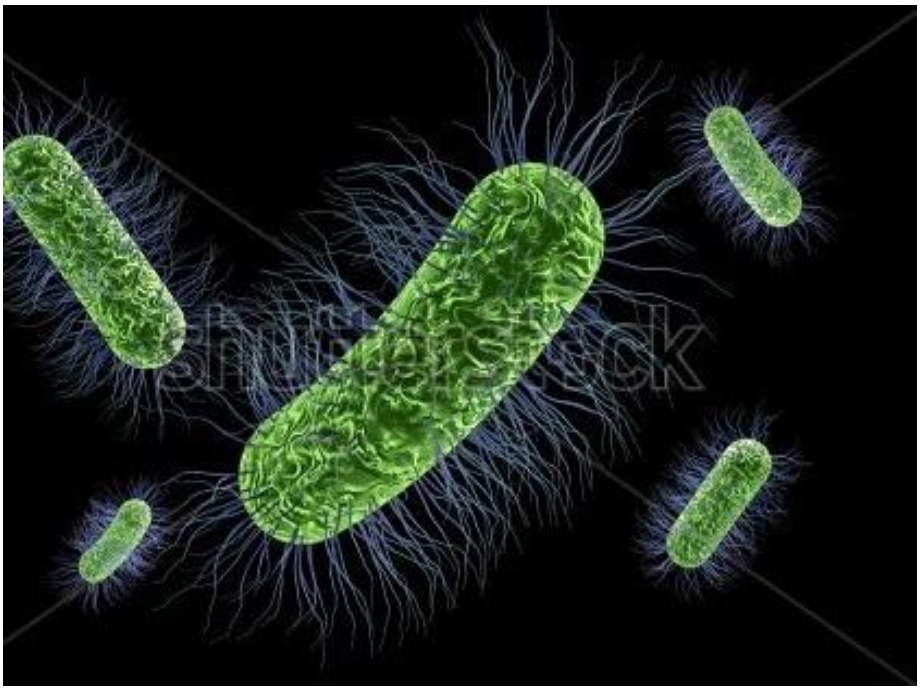
COMMON MICROBIAL PATHOGEN CAUSING UTI

E.coli	50 – 90 %
Klebsiella / Enterobacter	10 – 40 %
Proteus	5 – 10 %
Pseudomonas aureginosa	2 – 10 %
Staphylococcus saprophyticus	2 – 10 %
Enterococcus	2 – 10 %
Candida albicans	1 – 2 %
Staphylococcus aureus	1 – 2 %

COMMON BACTERIAL CAUSES OF UTI IN HOSPITAL AND THE COMMUNITY:

ORGANISM	COMMUNITY (%)	HOSPITAL (%)
Escherichia coli	69.4	50.8
Proteus mirabilis	4.3	5.1
Klebsiella/Enterobacter spp	4.7	7.3
Enterococcus spp	5.5	11.9
Staphylococcus spp	4.0	8.4
Pseudomonas aeruginosa	0	11.1
Others	12.1	5.4

(A)Escherichia coli:



Gram negative bacilli

Escherichia coli is the commonest cause of UTI and in about 60 -90% of acute infections in the general population without urologic abnormalities or calculi and 50% of hospital acquired infections.

Certain strains of E. coli appear well adapted to invade the urinary tract (sero groups 02, 04, 06, 07,018,075)

Morphology;

Gram negative, non-sporing, non-capsulated bacillus measuring 1.3µm × 0.4-0.7µm. most strains are motile by peritrichate flagella, some strains non motile.

Resistance;

Higher resistance to heat then other coliforms. Excreted in faeces of man and animal in very large numbers and contaminate the soil very widely and survive in the environment without growth for several weeks or months.

Antigenic structure;

Diagnostic scheme for E.coli based on the presence of o, H and K antigens detected by agglutination reactions.

1. Somatic antigen (O antigen)

Early 'O' group – 1, 2, 3, 4, 5 etc

Later 'O' group – 26, 55, 86, 111, 112 etc

2. Surface antigen (K antigen)

It is subdivided into 3 classes (L, B, A antigen)

K antigen in now divided into 2 groups – group I & II

3. Flagellar antigen (H antigen)

These are thermolabile. Now 50 'H' antigen are described.

4. Fimbrial antigen (F antigen)

Thermolabile proteins and heating the organisms at 100^0C detaches its fimbriae.

Pathogenesis;

E.coli 'O' serotypes forms the majority of isolates from urinary tract infection. These bacteria are also normally present in the colon of both infected and non-infected

individual. Most frequently encountered ‘O’ serotypes of E.coli UTI include 01, 02, 04, 06, 07, 018 & 075 which are also called nephritogenic strains. These serogroups are believed to have a special nephron pathogenic potential due to following factors;

* Polysaccharides of ‘O’ and ‘K’ antigens protects the bacteria from the bactericidal effects of complements and phagocytes in absence of specific antibodies. Strains possessing K1 or K5 antigen appear to be more virulent.

* Fimbriae specially mediates the adherence of the organism to the uroepithelial cells. The attachment may occur through the sugar residues that are present on the surface of the epithelial cells on the fimbriae. It is believed that the receptor is part of the ‘P’ Blood group antigen and hence the fimbriae are also termed as ‘P’ fimbriae.

The bacterial flora of colon is the reservoirs of infection and infection often occurs in an ascending manner via urethra from the perineum. Colonisation of peri-urethral area by potential pathogen may be a prerequisite for UTI.

(B) Klebsiella Spp

(C) Proteous Spp, especially P. mirablis

(D) Occasionally Enterobacter, Pseudomonas, Serratia

(E) Salmonella spp

(F) Neisseria gonorrhoea

Gram positive cocci:

The role of gram positive cocci in UTI is much less.

(A) Staphylococcus SaprophyticusIt is a true primary pathogen of urinary tract accounts for 2-3% cases of urethritis and cystitis in sexually active otherwise healthy young females.

Staphylococcus epidermidis constitute normal skin flora and found in urine as contaminants.

(B) Enterococci – UTI, calculi or after instrumentation

(C) Staphylococcus aureus – UTI calculi or after instrumentation

(D) Mycobacterium tuberculosis.

(E) Acute uncomplicated urinary tract infection is usually caused by one organism which is E. coli more predominant. Chronic or complicated infection is often associated with more than one typo of organism and E coli is still the commonest, but other members such as klebsiella, Enterobacter, Proteus and Citrobacter are also frequent, especially in the abnormal or catheterised urinary tract particularly in hospital patients.

(F) ***Citrobacter:*** Motile, citrate positive bacilli are normal inhabitants of intestine. The genus contains two recognised species *Citro. Freundi* which gives typical reactions with production of H_2S and *citro. Diversus* that does not form H_2 S other species *is c.amalonatics. citrobacter* can cause UTI and sepsis.

Klebsiella:

Morphologically Klebsiella species stimulate E coli except that they are non-motile and possess a polysaccharide capsule. They grow on ordinary media, produce pink colonies in Mac Conkey's agar and mucoid colonies of varying stickness. They are widely distributed in nature, occurring both as commensals in human and animal intestine as well as saphrophytes is soil, water and vegetation. At present the name K. Pneumoniae is applied for the species as a whole. The most frequently encountered biochemically typical form of Klebsiella is referred as K.Pneumoniae sub spp aerogenes.

Classification;

It contains 3 important sub species and into over 90 serotypes numbered as 1, 2, 3 and so on.

Pathogenicity;

k.pneumoniae is a second most popular member next to E coli of aerobic bacterial flora of intestine of man and more so in hospital patients. They are responsible for UTI, nosocomial infections, wound infection, septicaemia, meningitis and rarely diarrhoea. The hospital acquired intestinal strains are resistant to a wide range of antibiotics.

Antigenic structure;

Klebsiella contains 5 different somatic or 'O' antigen in various combinations, four of which are identical or closely related to 'O' antigens of E coli.

Proteus:

Most strains of proteus are widely distributed in nature such as rotten meat, sewerage, soli frequently in the faeces of men and animals. These are gram negative, actively motile, non-capsulated aerobic bacilli.

Classification;

The genus proteus was previously classified into 5 biotypes based on biochemical differences, *P. vulgaris, P. mirablis, P. morganii, P. rettgeri and P.inconstans.*

Antigenic structure;

Motile srains of proteus possess thermostable 'O' and thermolabile 'H' antigens and all the strains have distinct 'O' antigens.

Pathogenicity;

These are opportunistic pathogens and may cause;

1. Urinary tract infection
2. Pyogenic lesion, such as abscess, bed sores, infection of wound, ear and respiratory tract.
3. P.morganii has been incriminated in summer diarrhoea of children.

Proteus infections tend to occur in patients in obstructive lesions of urinary tract following diagnostic instrumentation or during prolonged catheterisation. However the infections may occur by haematogenous dissemination of organisms.

Source of infection

Infection via ascending route

E coli
Proteus spp
Klebsiella spp
Staphylococcus aureus
Pseudomonas app
Candida albicans.

Infection via haematogenous route or desending route:

Salmonella spp
Mycobacterium tuberculosis
Cytomegalo virus
Adeno virus type II.

TYPES OF URINARY TRACT INFECTIONS:

It is classified into 2 types;

1. Upper Urinary Tract Infection
2. Lower Urinary Tract Infection

UPPER URINARY TRACT INFECTION:

The hallmark symptoms of acute pyelonephritis are;

Flank pain

Fever

Nausea

Vomiting

Rigors

In most cases infection from ascending lower urinary tract infection, resulting in bacteraemia in a third of cases the most common organism responsible is E coli. Chronic pyelonephritis is chronic inflammation of the kidney, often associated with chronic obstruction of the urinary tract in young children, from backflow of urine from the bladder into the ureter (vesicoureteric reflux)

Staphylococci are a common cause and renal abscesses are generally present. Recurrent episodes of pyelonephritis results in a loss of function of renal tissue, which may in turn, cause hypertension, itself a cause of renal damage. Infection associated with stone formation can result in obstruction of the renal tract and septicaemia.

LOWER URINARY TRACT INFECTION:

Cystitis:

95% of cases UTI are acute cystitis. It results from spread of organisms up the urethra and like other sites of infection, E coli is by far the most common cause. Symptoms of infection include;

Dysuria (painful urination)

Passing urine more frequently

Suprapubic pain

Cystitis patients also experience pain and tenderness in the suprapubic area. Fever and systemic manifestation of illness are usually absent the infection spread to involve the kidney.

Urethral syndrome:

It is used to describe a patient who presents with the symptoms of dysuria; this may (particularly in women) result from a urinary tract infection (due to *E coli or S. saprophyticus*) sometimes with lower bacterial counts than anticipated with urinary tract infection in both men and women, it may be part an acute or chronic non- specific urethritis classically due to Neisseria gonorrhoeae or *Chlamydia trachomatis* but *Mycoplasma spp* may also implicated.

Acute epididymitis:

It is inflammation of epididymis a tubing that connects the urethra to the testes. In older men this is usually due to typical UTI pathogens such as *E. coli* but in younger men it is more likely to be due to sexually transmitted bacteria.

Prostatitis:

Infection of the prostate is typically manifested as pain in the lower back, perirectal area, and testicles. The same bacteria that cause cystitis and pyelonephritis are involved. In acute infection, the pain may be severe and accompanied by high fever, chills, and the signs and symptoms of cystitis. Inflammatory swelling can lead to obstruction of the neighbouring urethra and urinary retention. On rectal palpation, the prostate is boggy and exquisitely tender.

Patient with chronic prostatitis seldom give a history of an acute episode. Many are totally without symptoms others experience low grade pain and dysuria. Periodic spread of prostatic organisms to the urine in the bladder produces recurrent bouts of cystitis. In fact, chronic prostatitis is probably the major cause of recurrent bacteriuria in men.

CLINICAL FEATURES AND COMPLICATIONS:

Acute infections of the lower urinary tract are characterized by a rapid onset of;

- Dysuria (burning pain on passing urine)
- Urgency (the urgent need to pass urine)
- Frequency of micturition.

However UTIs in the elderly and those with indwelling catheters are usually asymptomatic. The urine is cloudy due to the presence of pus cells (pyuria) and bacteria (bacteriuria) and may contain blood (hematuria). Examination of urine specimens in the laboratory is

essential to confirm the diagnosis. Patients with genital tract infections such as vaginal thrush or chlamydial urethritis may present with similar symptoms.

Pyuria in the absence of positive urine cultures can be due to chlamydiae or tuberculosis and is also seen in patients receiving antibacterial therapy for UTI, as the bacteria are inhibited or killed by the antibacterial agent before the inflammatory response dies away.

Complication*:* Recurrent infections of the lower urinary tract occur in a significant proportion of patients. They may be;

- Relapse, caused by the same strain of organism
- Re-infections by different organisms.

Recurrent infections can result in chronic inflammatory changes in the bladder, prostate and periurethral glands.

Acute bacterial prostatitis may arise from ascending or haematogenous infection and people lacking the antibacterial substances normally present in prostatic fluid are perhaps more susceptible. Chronic bacterial prostatitis usually caused by E. coli is difficult to cure and can be a source of relapsing infection within the urinary tract.

MECHANISM DESIGNED TO PREVENT INFECTION:

The bladder has a number of mechanisms designed to resist infection. The most basic of these is the physical washing out effect in the production of urine that dilutes any bacterial load and removes infection organisms. This regular flushing helps prevent infection ascending either into the bladder into the ureter. One can imagine that the risk of infection would depend on the initial inoculum and multiplication rate of the organism in addition to any residual urine within the bladder, urine flow and frequency of voiding.

Obstruction to urine flow, for example through enlargement of the prostate gland in men, or if the bladder incompletely empties, for example through reflux of urine into the ureters (vesicoureteric reflux) due to inadequate development of the one way valve between ureter and bladder increase the risk of urinary tract infection developing.

Other physical property of urine such as extremes of pH, high osmolality, IgA and high urea concentration, tend to be protective. Historically urine has been used as an antiseptic. Furthermore the cells lining the urethra, bladder and ureter resist colonization

by bacteria. A type of antibody (IgA) secreted by immune cells within the bladder wall is also found in the urethra and stops bacteria binding.

DIAGNOSIS:

URINARY SAMPLES:

SPECIMEN COLLECTION;

As is true many aspect of microbiology the quality of bacteriology results is only as good as the quality of the specimen. It is recognized that the distal urethra is colonized with bacteria although it should be noted that this often involves skin commensal organisms such as anaerobes or lactobacillus spp. This would rarely be considered significant in a urine culture. They may also have faecal organisms such as E.coli (which obviously could be deemed relevant) if the sample is not collected properly. There are a number of urine specimen types these are listed below;

Midstream urine (MSU):

Patient should be given clear instructions on collection of urine. The first urine passed washes away organisms from the distal urethra and this should be discarded into toilet or other receptacle. The midstream urine sample can then be collected into a suitable sterile container.

This process requires;

- Good control of micturition
- Appropriate hand eye co- ordination
- Sufficient mobility to locate a sterile container in the urine stream

It is obviously not suited to the very young the elderly or the infirm

Some collection receptacles are associated with lower contamination rates.

URINE CULTURE:

Based on studies done half a century ago demonstrating that the number of bacteria in infected urine is large quantitative bacteriology has been the gold diagnostic standard for UTI. Perhaps no number in medicine is better known or more slavishly adhered to than 10^5 bacteria/ml of urine. Higher than it is UTI lower than it is contamination. We now know that it is possible to void more than 10^5 of contaminants and to have a genuine UTI with less than 10^5 bacteria.

Virtually no woman with sterile bladder urine as determined by suprapubic aspiration can void a sterile specimen even with periurithral cleansing. Voided contaminants are most often mixtures of vaginal flora not associated with UTI such as lactobacilli, diptheroids and streptococci, but can include urinary pathogens. Conversely we now known that bacterial counts in UTI represent a spectrum from 10^2 to more than 10^6 bacteria/ml. the lower counts are typical for simple cystitis and the high counts for pyelonephritis. Fully on third of women with UTI limited to the bladder demonstrate counts less than 10^5bacteria/ml.Given the overlap, application of these findings to clinical practice requires linking the epidemiologic probability to the clinical findings. If a women has symptoms of cystitis and a culture positive for urinary pathogen, the probability that she has a UTI is 90% even if the count is as low as 10^3 bacteria/ml.

If the women is asymptomatic, the probability drop to 80% even if the count is more than 10^5 ml. in the latter case the culture must be repeated before concluding that a UTI is present. Voiding more than 10^5 of the same contaminant twice in a row is unlikely. There is no repeat positive culture from symptomatic patients. Catheterized and suprapubic specimens may be accepted at face value, because they come directly from the bladder.

DIFFERENTIAL DIAGNOSIS:

- Pyelonephritis
- Appendicitis
- Salphingitis
- Cholecystitis
- Diverticulitis
- Pancreatitis.

PREVENTION;

- Recurrent infection in otherwise healthy women can be prevented by regularly emptying the bladder. This washes bacteria out of the urinary tract and is particularly important following intercourse.

- The prophylactic use of antibiotics may also prevent recurrent infections, but in the presence of underlying abnormalities there is a tendency to select antibiotic-resistant strains, which subsequently cause infections that are more difficult to treat.
- Infection in catheterized patients is very common, but can be reduced by good catheter care procedures. Catheterization should be avoided if possible or kept to a minimum duration.
- Infected children, men, and those who experience UTI relapse should be investigated with intravenous pyelography to allow detection and correction of any factor causing predisposition to infection.
- Fluid intake of at least 3 litres/day.

MATERIALS AND METHODS

PROTOCOL

Title:

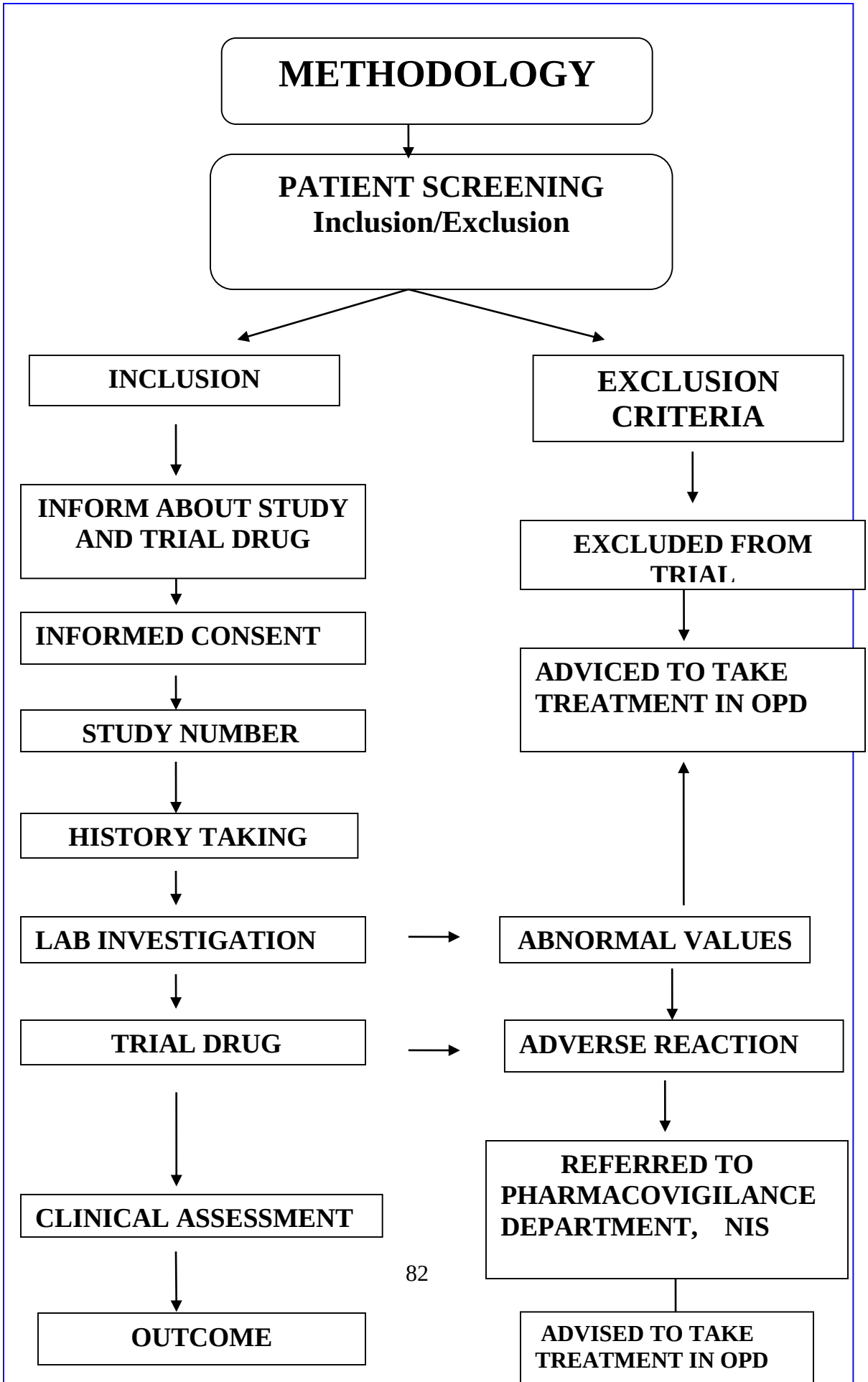
Clinical evaluation of siddha herbal formulation"MALLIKAI CHOORANAM" (Internal) in the treatment of "AZHAL NEERCHURUKKU" (Urinary Tract infection)

Study design and conduct study:

Study type	: open clinical trial
Study place	: OPD of Ayothidoss Pandithar Hospital, National Institute of Siddha,, Chennai-47.
Study period	: 12 months
Sample size	: 30 patients both Male and Female.
Treatment:	
Drug	: MALLIKAI CHOORNAM
Dosage	: ½ Thola (6 grams), twice a day, before food.
Adjuvant	: Hot water
Route of administration	: oral route

Duration of the drug administration : Initially 5 day's trial drug will be administered to the patient. Followed by the urine culture report the extension of trail drug administration for another 5 days will be decided.

Indication	: Azhal neerchurukku
Ref.Book	: Chikicha Rathna Deepam
Editor Name	: C.Kannusami pillai
Edition	: 2007


METHODOLOGY
PATIENT SCREENING
Inclusion/Exclusion
INCLUSION
EXCLUSION CRITERIA
INFORM ABOUT STUDY AND TRIAL DRUG
EXCLUDED FROM TRIAL
INFORMED CONSENT
ADVICED TO TAKE TREATMENT IN OPD
STUDY NUMBER
HISTORY TAKING
LAB INVESTIGATION
ABNORMAL VALUES
TRIAL DRUG
ADVERSE REACTION
REFERRED TO PHARMACOVIGILANCE DEPARTMENT, NIS
CLINICAL ASSESSMENT
OUTCOME
ADVISED TO TAKE TREATMENT IN OPD

Subject selection:

Patients reporting at OPD of Maruthuvam with the symptoms of inclusion criteria will be subjected to screening test and documented using screening proforma.

Inclusion criteria:

- Age: 19-59 years
- Sex: Both,
- Patient having any of three symptoms such as burning micturition , dysuria, abdominal pain, low backache
- Patient who's willing to go for urine culture&undergo routine blood investigation.
- Patients with Urine culture significant for bacteria or fungus (eg.Escherichia coli, klebsiella, enterococci, proteusmirablis staphylococci etc.....)
- Patient who is willing to participate in trial and signing in consent form

Exclusion Criteria:

- Pregnant
- H/O Diabetes mellitus
- H/O Sexually transmitted disease
- H/O Malignancy

Withdrawal Criteria:

- Intolerance to the drug and development of adverse reactions during the drug trial.
- Poor patient compliance & defaulters.
- Patients turned unwilling to continue in the course of clinical trial.
- Patient who will not take medication regularly.

TEST AND ASSESSMENTS:

A. Clinical assessment

B. Siddha assessment

C. Investigations

Clinical Assessment:

- Frequency and urgency of micturation
- Suprapubic pain and tenderness
- Haematuria
- Urine that may appear cloudy and have an unpleasant odour
- Dysuria (Painful voiding)
- Abdominal pain
- Fever

Siddha Assessment

- Naadi (pulse perception)
- Sparisam (palpable perception)
- Naa (Tongue)
- Niram (complexion)
- Mozhi (voice)
- Vizhi (eyes)
- Malam (bowel habits)
- Moothiram (urine)

 Neerkuri: Niram-

Edai -

Manam-

Nurai -

Enjal –

 Neikuri

Routine Tests and Investigations

Blood:

- Hb (gms/dl)
- Total RBC (million/cu.mm)

- Total WBC (cubic mm)
- Differential count :(%)

Polymorphs

Lymphocytes

Monocytes

Esinophils

Basophils

•ESR (mm/hr)

•Blood sugar level - Fasting (mg/dl)

Post prandial (mg/dl)

Random (mg/dl)

•Lipid profile - Total cholesterol (mg/dl)

HDL (mg/dl)

LDL (mg/dl)

VLDL (mg/dl)

TGL (mg/dl)

- Renal function test - Blood Urea (mg/dl)

SerumCreatinine (mg/dl)

Uric acid (mg/dl)

•Liver function test - Serum total bilirubin (mg/dl)

Direct bilirubin (mg/dl)

Indirect bilirubin (mg/dl)

SGOT (IU/L)

SGPT (IU/L)

Serum Alk.phosphotase (kingÅ units)

Serum calcium (mg/dl)

Serum phosphorus (mg/dl)

Total protein (mg/dl)

Serum albumin (mg/dl)

Serum globulin (mg/dl)

Serum fibrinogen (g/dl)

•Urine:

Albumin

Sugar (fasting and post prandial)

Deposits

Bile salts

Bile pigments

Urobilinogen

•Microbiology test: VDRL

Specific Investigations

URINE CULTURE – for Bacterial/fungal infection

Study Enrolment:

Patient reporting at the NIS, OPD with clinical features of frequent micturation by day and night , dysuria, supra pubic pain and tenderness , haematuria , smelly urine, fever, abdominal pain, low backache are chosen for enrolment based on the inclusion criteria. The patients who are enrolled are informed about the study trial drug, possible outcomes and the objectives of the study in their own language and terms understandable to them and the informed consent would be obtained from them in the consent form.

Conduct of the Study

From the first day , the trail drug MALLIKAI CHOORNAM –6gm twice a day with hot water before food will be given continuously for 5 days by the investigator in the OP department of Maruthuvam, NIS, Chennai. The patient's urine will be screened for culture on the 6th day. Depending on the outcome of the urine culture report further extending of duration of trail drug administration for 5 more days will be decided. After deciding the duration of the drug further 30 patients will be included in the trail and the drug will be given. In every visit the clinical assessment will be recorded in the prescribed Proforma (form no: II A). The laboratory investigation will be done before and after treatment and recorded in the prescribed format (form no: III).

At the end of the trial the patients will be advised to come for follow up for 1 month for observation.

Data Management:

- After enrolling the patient in the study, a separate file for each patient will be opened and all forms will be filed in the file. Study No. and Patient No. will be entered on the top of file for easy identification. Whenever the study patient visits OPD during the study period, the respective patient's file will be taken and necessary recordings will be made at the assessment form or other suitable forms.
- The screening forms will be filed separately.
- The Data recordings will be monitored for completion by Guide (HOD, Dept. of Maruthuvam), SRO (Statistics) and the adverse event will be monitored by the members of the Pharmacovigilance department of NIS. All forms will be further scrutinized in presence of Investigator by Sr.Research Officer (Statistics) for logical errors and incompleteness of data to avoid any bias. No modification in the results is permitted for unbiased reports.

OUTCOME

O **PRIMARY OUTCOME:**

- It is assessed by the Urine culture when the bacterial/fungal infection becomes negative after treatment & Absence of clinical signs and symptoms.

O **SECONDARY OUTCOME:**

- Invitro antimicrobial activity of trail drug will be studied
- Socio economic status, Age related to the disease will be assessed.

Adverse effect and Serious effect Management:

If the trial patient develops any adverse reactions the patient will be referred to the Pharmacovigilance department of NIS and documented. For any adverse effect the investigator will give the proper management in the OPD.

Ethical issues:

1. Informed consent will be obtained from the patients after explaining about the clinical trial in an understandable language.
2. After the consent of the patient (through consent form) they will be enrolled in the study.
3. Treatment will be provided free of cost
4. No other medicines will be used except the trial drug.

5. Urine culture is performed in NIS clinical laboratory.

6. To prevent any infection, while collecting blood sample from the patient, only Disposable syringes, disposable gloves, with proper sterilization of lab equipments willbe used.

7. The data collected from the patient will be kept confidentially. The patient will be informed about the diagnosis, treatment and follow up.

8. The patients who are excluded (as per the exclusion criteria) are given proper treatment with full care at OPD.

9. In conditions of treatment failure, adverse reactions patients will be given alternative treatment at the OPD with full care through the end.

STATISTICAL ANALYSIS:

All data will be entered into computer using MS Access software with macro for logical errors and manually cross checked for data entry error. Then the data will be exported to STATA/SPSS software for univariate/multivariate analysis. Student‘t’ test and Mantel-Haenszel chi-square test will be performed for determining the significance of a particular effect variable.

Data collection forms:

Required information will be collected from each patient by using the following forms Forms:

FORM l : Screening & Selection Proforma

FORM ll : Case Record form

FORM lll : Laboratory Investigation form

FORM IV : Drug compliance form

FORM V : Patient Information Sheet

FORM VI : Informed Consent Form

FORM VII : Withdrawal Form/ Adverse reaction form (Pharmacovigilance form)

FORM VIII : Dietary advice Form

STANDARD OPERATING PROCEDURE FOR MALLIKAI CHOORNAM:

Source of raw drug:

The required raw drugs will be purchased from a well reputed indigenous drug shop. The raw drug will be authenticated by the Assistant professor, Medicinal botany, National Institute of siddha, Chennai. The raw drug will be purified and the medicine will be prepared as per SOP in Gunapadam Laboratory of National Institute of Siddha.

Purification of raw drugs:

PARANKICHAKKAI (Tuber of Smilax china .Linn)

Powdered and steamed with cow's milk and then dried.

ATHIMATHURAM (Root of Glyciriza glabra. Linn)

Washed with clean water, skin is pealed and made in to small pieces.

KARUNGJEERAGAM (Seeds of Nigella sativa. Linn)

Cleaned and kept in sunlight then fry it to golden colour.

JEERAGAM (Seeds of Cuminum ciminum. Linn)

Sand and dust particles are cleaned and kept in sun light.

KUKIL-Sajara (Gum of Shorea robusta. Gaertn)

Boil with tender coconut.

EALAM (Fruits of Elettaria cardamomum. Marton)

Clean and kept in sunlight.

SANNALAVANGA PATTAI (Stem bark of Cinnamomum zylanicum. Presl)

Clean and kept in sunlight.

KIRAMBU (Buds of Syzygium aromaticum. Linn)

Clean and kept in sunlight.

VITHAI ILLA THIRACHAI (Dry fruits of Vitis vinifera. Linn)

Clean and kept in sunlight.

THANIYA (Seeds of Coriandram sativam.Linn)

Tie coriandram sativam seeds using a cloth and boil it by dipping in lemon juice, then dry in sun light.

Method of preparation:

Purified Ingredients:

Thaniya (Corriandram sativam.Linn)	-315grams (9palam)
Paranki chakkai (Smilax china.linn)	-35grams (1palam)
Athimathuram (Glyciriza glabra.Linn)	-35grams (1palam)
Karunjeeragam (Nigella sativa.Linn)	-35grams (1palam)
Jeeragam (Cumminum ciminum.Linn)	-35grams (1palam)
Sajara (Shorae robusta.Gaertn)	-35grams (1palam)
Ealam (Eletteria cardamomum.Marton)	-35grams (1palam)
Sannalavanga pattai (Cinnamomum zylanicum.Presl)	-35grams (1palam)
Kirambu (Syzygium aromaticum.Linn)	-35grams (1palam)
Vithai illa thirachai (Vitis vinifera.Linn)	-35grams (1palam)

Method of preparation:

Coriander seeds are dried in sunlight, the remaining raw drug are fried to till they reach golden color and powdered .Mix all the powder. The prepared drug will be stored in a clean and dry tight glass container.

Dose of drug:

6 grams (½ thola) twice a day, before food with palm sugar powder.

Adjuvant:

Hot water.

Duration:

15 days.

Dispensing:

The choornam will be given to the patient in premium quality of zip lock pack. 60 gram pack for 5days.

Pathiyam:

Itcha pathiyam.

Reference: Kannusamypillai, chikicharathnadeepam.2007, page no 122.

RAW DRUG REVIEW

தனியா

BOTANICAL NAME: Coriandrum sataivum.Linn

FAMILY : Umbelliferae

OTHER NAMES : Urul arisi, Kothamalli

VERNACULAR NAMES:

English - Coriander seeds

Telugu - Kotimiri

Malayalam - Kotta malli, Kottam palari

Kanata - Kottamari, Bija

Sanskrit - kustum bari, Dhanyaka

Arabic - Kuzbarah

Pers - Kashni z

Hindi - Dhanya

HABITATE:

An annual plant, 40 – 50 cm high or sometimes somewhat more, glabrous, wild known from palatine, Syria, Mesopotamia and Greece. Cultivated throughout India.

PARTS USED:

Leaf, seeds

CHEMICAL CONSTITUENTS:

Linaol (37.7%), geranyl acetate (17.6%), Y.terpiene (14.4%)

Essential oil, tannins, terpenoids, reducing sugar, fatty acids, sterols and glycosides.

சுவை - கார்ப்பு

தன்மை - சீதவெப்பம்

பிரிவு - கார்ப்பு

குணம்:

“ கொத்துமல்லி வெப்பம் குளிர்காய்ச்சல் பித்தமந்தஞ்
சர்த்திவிக்கல் தாகமொடு தாதுநட்டம் – கத்தியெழும்
வாத விகார்மடர் வங்கர்த்த பிவிரணம்
பூதலத்தில் லாதகற்றும் போற்று.”

ACTION:

Stomachic
Carminative
Stimulant
Diuretic
Aphrodisiac
Laxative
Anthelmintic

PHARMACOLOGICAL AND BIOLOGICAL STUDIES:

Antibacterial, anxiolytic, antidepressant, sedative, hypnotic, anticonvulsant, neuroproductive, antifungal, anthelmintic, analgesic, anti-diabetic, hepatoproductive, anticancer.

OTHER USES:

- The seeds are chewed to correct foul breath.
- The juice of fresh plant is used as an application to erythema caused by the application of marking nut.
- Coriander seeds are used as a spice and flavoring agent in medicine throughout the east.
- The roots and leaves powdered and mixed with alcohol are used to touch the eruption of measles in children.
- The plant is prescribed for snake bite and scorpion bite.

பறங்கிப் பட்டை

BOTANICAL NAME: Smilax china.Linn

FAMILY: Liliaceae

OTHER NAMES:

Mathusmegam

Mathumeegi

Cheena pattai

Paranki chakkai

VERNACULAR NAMES;

English	-China root
Telugu	-Piranki-chekka
Malayalam	-Pavu
Sanskrit	-Madusini
Hindi	-Chobchini

HABITATE:

It is a climbing plant species. In china it is occur in forest, thickest hillsides, greasy slaps and shaded phases along vellum or streams. It is found from near sea level to 2000m.

PARTS USED:

Rhizome

CHEMICAL CONSTITUENTS:

Saponins – similax saponin

Ketone – 16-hentriacontanone

Carotenoids- β. Carotene, cytoxanthin, lutein

Amino acids- arginine, 4 methylene, 4 methyl glutamic acid.

Stilbenes and flavonoids –glycosides, piceid, oxyresveratrol, engeletin,

சுவை - இனிப்பு

தன்மை - தட்பம்

பிரிவு - இனிப்பு

குணம்:

"தாகம் பலவாதந் தாதுநட்டம் புண்பிளவை
மேகங் கடிகிரந்தி வீழ்மூலந் – தேகமுடன்
குட்டை பகந்தமேற் கொள்வமனம் போம்பறங்கிப்
பட்டையினை யுச்சரித்துப் பார்"

ACTIONS:

Alternative

Antisyphilitic

Aphrodiciac

Depurative

Diuretic

PHARMACOLOGICAL AND BIOLOGICAL STUDIES:

Anti-inflammatory, anti-cancer, antioxidant, antidiabetic, antiobesity, hepato prodective, analgesic, antibacterial.

USES:

- A decoction of the roots of smilax china has been used to all stages of syphilis.
- Roots has been employed to paralysis and sciatica.
- It is used in urinary tract infection, stone and ulcer of bladder even chyluria by the physicians.

அதிமதுரம்

BOTANICAL NAME: Glycyrrhiza glabra . Linn

FAMILY: Fabaceae

OTHER NAMES

Athingam

Atti

Mathoogam

Kuntri ver

VERNACULAR NAMES:

English	- Jequility Indian or jamica liquorice
Telugu	- Ati-madhuramu
Sanskrit	- Yasthi madhukam
Pers	- Bikhe mahak
Duke	- Mutti lak
Malayalam	- ati Maduram
Arab	- Aslussus
Hindi	- Jathi madh

HABITATE;

It is a hardy or undershrub attaining a height up to 2m. it is distributed in the sub-tropical and warm temperature regions of the world, chiefly in mediterence countries, south Europe, Asia minor, Egypt. In India it is reported to be cultivated in Jammu, Srinagar, Delhi and south India.

PARTS USED:

Roots

CHEMICAL CONSTITUENTS:

Glycyrrhizine, Licoagnone, Glucoside, Kaempferol, Astergalin, Licuraside, Liquoric acid, Deoxoglycyrrhetic acid, Glycyhizic acid, Glabrone, Saponaretin, Glyzarzin, Glycyrin, Sugar and aspargin.

சுவை - இனிப்பு

தன்மை - சீதம்

பிரிவு - இனிப்பு

குணம்:

"தித்திக்கு மதிமதுரக் குணத்தையெடுத்து ரைக்கில்
சிரமயக்கஞ் சுரதாகங் திரிதோடங்கள்
பித்தஞ்சத் திக்குமிது குணமா மதுரதீபனமாந்
தாதுவுட்டிணமுந் தவிர்க்கும் விழிக்கிதமாம்
புத்திக்கு வித்தாகுந் சந்தாபந் தீர்க்கும்
புகைந்தெடுகுந் சேட்டுமத்தைப் பித்தரோகத்தை
அத்திப்பற் றினமேகந் தன்னைவா தத்தினை
யறுத்திடும்வச் சிரமென்பா ரதிமதுரந்தனையே"

ACTION;

Emollient

Demullsant

Mild expectorant

Laxative

Tonic

Aphrodisiac

PHARMOCOLOGICAL AND BIOLOGICAL STUDIES:

Antibacterial, antioxidant, expectorant, antiallergic, anti-inflammatory, antifungal, anti-carcinogenic, anti-malarial, hepato productive, anti-coagulant.

USES:

- It is useful in hyperdipsia, cough, bronchitis, ulceration of urinary tract.
- Decoction of root in good wash for falling and graying of hair
- It is externally applied for cuts and wound.

கருஞ்சீரகம்

BOTANICAL NAME: Nigella sativa. Linn

FAMILY: Ranunculaceae

OTHER NAMES;

Aranam

Ubakunjikai

VERNACULAR NAMES:

English - Black cumin, smell fennal

Telugu - Nalla jillakara

Malayalam - Karincheakam

Kanata - Kari jiriga

Sanskrit - ubakunjika, Krishna jiraka

Hindi - Kulanji, Kala zira

HABITATE:

It's native south and southwest asia. It grows to 20 – 30 cm tall with finely divided, linear leaves.

PARTS USED:

Seeds

CHEMICAL CONSTITUENTS:

VOLOTILE OIL (0.4 – 0.45%), Saturated fatty acids, Nigelone (carbonyl fraction), Thymoquinone, Thymohydroquinone, Dithymoquione, Thymol, Carvacrol, d-limone, d-citronellol, p-cymene.

சுவை - கைப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

குணம்:

"கருஞ்சீ ரகந்தான் கரப்பனொடு புண்ணும்
வருஞ்சிராய்ப் பீனிசமு மாற்றும் –அருந்தினால்
காய்ச்சல் தலைவலியுங் கண்வலியும் போகுலகில்
வாய்ச்ச மருந்தெனயே வை"

ACTION:

Carminative
Diuretic
Emmanogogue
Galactogogue
Anthelmintic
Stomachic
Parasiticide
Emollient.

PHARMACOLOGICAL AND BIOLOGICAL STUDIES:

Antibacterial, antifungal, ant diabetic, anti-inflammatory, analgesic, immune modulator, gastro production, hepato production, testicular production, human neutrophil esterase activity.

USES:

- External application for head ache, osteoarthritis.
- Powder of nigella sativa along with vinegar it is used for anthelmintic
- Nigella sativa powder with gingili oil used external applicant for eczema and scabies.
- Powder with honey it relieves dyspnea.
- Powder with butter milk it relieves hiccup.

சீரகம்

BOTANICAL NAME: Cuminum cyminum .Linn

FAMILY: Apiaceae (umbelliferae)

OTHER NAMES:

Asai

Seeri

Upakumbapeesam

Narcherri

Thuththasambalam

Praththivika

Pitha nasini

Posanakudari

Meththiyam

VERNACULAR NAMES:

Sanskrit - Ajali, jeeraka, Ajmoda, Kunjika, Jira

English - Cumin seed, caraway seed

Hindi - Safed Jeera, Zira, Jira

Telugu - Jeelkara

Arbic - Kamum, Kammon

Per - Zeera, Zira

Malayalam - Cheerakam, jeerakam.

HABITAT:

A small slender annual herb, cultivated in almost all the states in India except Bengal and Assam.

PARTS USED:

Seed, fruit

CHEMICAL CONSTITUENTS:

Lipid, phospholipids, flavonoid, glycoside, apigenin luteolin, chrysoeriol,thymine.

சுவை - கார்ப்பு, இனிப்பு

தன்மை - தட்பம்

பிரிவு - இனிப்பு

குணம்:

"வாந்தி யருசி குன்மம் வாய்நோய்பீ லிகபமிரைப்
பேற்றிருமல் கல்லிடைப்பி லாஞ்சனமும் – சேர்ந்த கம்மல்
ஆனகு டாரியெனும் அந்த கிரகணியும்
போசனகு டாரியுண்ணப் போம்"

ACTION:

Carminative

Aromatic

Stomachic

Stimulant

Astringent

PHARMACOLOGYICAL AND BIOLOGICAL STUDIES:

Anti-tumor, hypoglycemic, hepatoproductive, cholengic, antioxidant, galatogogue Nutrional, antibacterial, antifungal, insecticidal.

USES:

- Seeds are cooling in effect and used for gonorrhoeae, chronic diarrhea and dyspepsia
- A quality of the seeds slightly smeared with ghee put into a pipe and smoked relives hiccup.
- Cumin oil can be readily converted artificially into thymol, thymol is used as an anthelmintic against hookworm infestation and also as an antiseptic.
- Cumin fruits are very useful in digestive disorders like biliousness, morning sickness, indigestion, diarrhea, flatulent colic.
- Cumin fruits are also very useful in constipation.

சாஜரா -குக்கில்

BOTANICAL NAME: Shorea robusta

FAMILY: Dipterocarpaceae

OTHER NAMES:

Gunguliyam

Gunguligam

Saruvarasam

Gukulu

Gukil

Gukkiliyam

VERNACULAR NAMES:

English	- Sal tree
Telugu	- Guggilamu
Malayalam	- Kungiliyam
Arab	- Qanquaher
Pers	- Raal-maabbari
Hindi	- Dhuna, Damar
Sanskrit	- Gugglium

HABITATE:

A deciduous tree, seldom quite, leafless, bark brown in color, smooth brown with a few longitudinal cracks. It is distributed in kanga district of the Punjab, sub Himalayan tract, guar hill, Kashmir hill, jeypour, vizagapatinam.

PARTS USED:

Gum

CHEMICAL CONSTITUENTS:

Flavanoids, Saponins, Steroids, Tannins, Phenols, triterpenoids.

சுவை - கைப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

குணம்:

"பெரும்பாடு மேகம்போம் பேரா துடலில்
அரும்பிய புண் ணாறுமிவை யல்லால் – குரும்பால்
எலும்புருக்கி புண்சீழும் ஏகும் உலகில்
சலிம்பருகுங் குங்கிலியத் தால்"

ACTION:

Stimulant

Expectorant

Diuretic

PHARMACOLOGY AND BIOLOGICAL STUDIES:

Antimicrobial, Analgesic, Anti-inflammatory, Hyperlipidemia, Anti diabetic, Immunomodulatory, Wound healing, Anti-ulcer, Antipyretic,

USES:

- The resin is cooling but difficulty to digest , bitter and acrid, astringent to the bowels
- Purifies the blood.
- The resin is tonic to the brain.
- It is used to dysentery and for plaster and fumigation.
- It is commonly used for weak digestion, gonorrhea and as an aphrodisiac.

ஏலம்

BOTANICAL NAME: Elattaria cardamomum. Matron

FAMILY: Zingiberaceae

OTHER NAMES:

Aanji

Korangam

Thudi

VERNACULAR NAMES:

English - Cardamon seeds

Malayalam - Elattari

Hindi - Elachi

Telugu - Elakulu

Kandam -Elakki

Sanskrit - Ela

HABITATE:

Cardamom is commonly native to India. It is widely found in Western Ghats of southern India. This area is known as cardamom hills. Tropical rain forest at the elevations of 2000 – 5000 fts. Are best for its growth.

PARTS USED:

Seeds

CHEMICAL CONSTITUENTS:

Mycrene, Terpinol, Geraneol, Trans nerodiol, Hepatone, Linalool, Camphor, Citral, Farsneol.

சுவை - கார்ப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

குணம்:

“தொண்டை வாய்கவுள் தாலுகு தங்களில்
தோன்றும் நோயதி சாரம்பன் மேகத்தால்
உண்டை போலெழுங் கட்டி கிரிச்சரம்
உழலை வாந்தி சிலந்தி விஷஞ்சுரம்
பண்டை வெக்கை விதாகநோய் காசமும்
பாழுஞ் சோமப் பிணிவிந்து நட்டமும்
அண்டை யீளைவன் பித்தம் இவைக்கெல்லாம்
ஆல மாங்கமழ் ஏல மருந்தே”

ACTION:

Stimulant

Carminative

Stomachic

PHARMACOLOGICAL AND BILOGICAL STUDIES:

Antimicrobial

OTHER USES:

- Cardamom with ginger juice to use loss of appetite
- Cardamom cures sinusitis, head disorder.
- Powder of cardamom cures cough, dryness of tongue, abdominal pain.
- Eathi vadagam cures abdominal pain.
- Cardamom decoction cures fever.

சன்னலவங்க பட்டை

BOTANICAL NAME: Cinnamomum zeylanicum. Breyn.

FAMILY: Lauraceae

OTHER NAMES:

Karuvapattai

VERNACULAR NAMES:

English	- Bark of cinnamon
Telugu	- Lavanga patta, Sanna lavanga patta
Malayalam	- Lavanga patta
Kandam	- Lavanga patta, Dala chinni.
Sanskrit	- Turak
Arab	- Qifahe-sailiyiab, Darchini
Pers	- Salikhae- sailaniyah
Hindi	- Qulami dar chini
Duk	- Qalan dal chini

HABITATE:

Cinnamon is an evergreen tree which grows from 20 -30 feet. It is found widely in srilanka but grows in Malabar, Cochin, china, Sumatra and in eastern islands. It is cultivated in Brazil, India, Jamica and in other countries also.

PARTS USED:

Bark

CHEMICAL CONSTITUENTS:

Cinnamaldehyde, Cinnamate, Cinnamic acid, essential oil, such as trans cinnamaldehyde, Cinnamyl acetate, euginol, L-borneol, α terpineol, Caryophyllene oxide.

சுவை -காரமும் இனிப்புமுடையது

தன்மை - தட்பம்

பிரிவு - இனிப்பு

குணம்:

“தாதுநட்டம் பேதி சருவவிஷம் ஆகியநோய்
பூதகிர கஞ்சிலந்திப் பூச்சிவிடஞ் –சாதிவிடம்
ஆட்டுமிரைப் போடிருமல் ஆகியநோய்க் கூட்டமற்
ஓட்டுமில வங்கத் துரி”

ACTION:

Stimulant

Carminative

Aphrodisiac

PHARMACOLOGY AND BIOLOGICAL STUDIES:

Anti-oxidant, antimicrobial, anti-inflammatory, immunomodulatiory, anti-amylase, anticholen esterase, antifungal.

USES:

- Cinnamon can also improve the health of the colon, thereby reducing the risk of colon cancer.
- It is a coagulants and prevent bleeding.
- It stops vomiting, relives flatulence and is useful in diarrhea and hemorrhage of the womb.
- Recent study suggest that consuming a little as one half teaspoon of cinnamon each day may reduce blood sugar and cholesterol level.

கிராம்பு

BOTANICAL NAME: Syzygium aromaticum (Linn) Merill& Perry

FAMILY: Myrtaceae

OTHER NAMES:

Anjugam

Urkadam

Karuvaikkirambu

Sosam

Thirali

Varangam

VERNACULAR NAMES:

English	- cloves
Telugu	- Lavangalu, Lavanga pu
Malayalam	- karambu
Kandam	- Lavanga
Hindi	- Long
Sanskrit	- Lavanga
Arab	- Aranful
Per	- Mekhak
Duk	- Lavan

HBITATE:

A pyramidal or conical evergreen tree up to 12m height. Flower buds greenish to pink, aromatic, clustered at the ends of branches. It is a native of some islands of Malay archipelaya especially Moluccas. In India it is reported to be grown in Tamilnadu and Kerala.

PARTS USED:

Flower buds

CHEMICAL CONSTITUENTS:

Isobiflorin, eugenol, acetyleugenol, caryophyllene, furfural traces, naphthalene, caryopylline oxide, eugenol acetate, eugenon, eugenine, eugenitine, syzyginis.

சுவை - காரமும் விறுவிறுப்புமுள்ளது

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

குணம்:

"பித்த மயக்கம் பேதியொடு வாந்தியும் போம்
சுத்தவிரத் தக்கடுப்புந் தோன்றுமோ – மெத்த
இலவங்கங் கொண்டாவருக் கேற் சுகமாகும்
மலமங்கே கட்டுமென வாழ்த்து."

ACTIONS:

Antispasmodic
Carminative
Stomachic

PHARMACOLOGY AND BIOLOGICAL STUDIES:

Antifungal, antibacterial, antioxidant, analgesic, ant carcinogenic, anti-inflammatory, anesthetic, anti-thrombotic.

USES:

- Externally the oil is used as an application in rheumatic pains, sciatica, lumbago, headache, neuralgia, tooth ache.
- The oil is antiseptic, general debility. Tuberculosis, syphilitic affections.

திராட்சை

BOTANICAL NAMES: Vitis vinifera. Linn

FAMILY: Vitaceae

OTHER NAMES:

Aravanm
Kodimunthiri
Kodimunthirigai
Munthirikai
Thirakshathi
Madhurasam
Kothirigai
Thirakkam
Patoththamai

VERNACULAR NAMES:

English	- Grapes, common grape wine, wine grape, European grape
Telugu	- Draksha
Malayalam	- Draksha
Sanskrit	- Draksha
Hindi	- Munaka
Kan	- Draksha

HABITATE:

A large delicious climber, tendrils long, bifid. It is native of west Asia, cultivated in many parts of India.

PARTS USED:

Leaves, fruits

CHEMICAL CONSTITUENTS:

Catechin, epicatechin, gallocatechin, epigallocatechin, afzelechin, epiafzelechin, proanthocyanidins.

சுவை - இனிப்பு

தன்மை - தட்பம்

பிரிவு - இனிப்பு

ACTION:

Fruit;

Laxative

Refrigerant

Diuretic

Nutritive

Leaf;

Astringent

Dry fruit;

Demulcent

Laxative

PHARMACOLOGY AND BIOLOGICAL STUDIES:

Antioxidant

Antibacterial

Antimicrobial

USES:

- The dried fruits are demulcent, laxative, sweet and useful in thirst.
- The sap of the young branch is a popular remedy for skin disease.
- The juice of unripe grapes is used as an astringent in affection of throat.
- The leaves in all out of their astringency are sometimes used in diarrhea.
- The leaves are useful in piles.

RAW DRUG PHOTOS

THANIYA

PARANGIPATTAI

ATHIMATHURAM

KARUNJEERAGAM

JEERAGAM

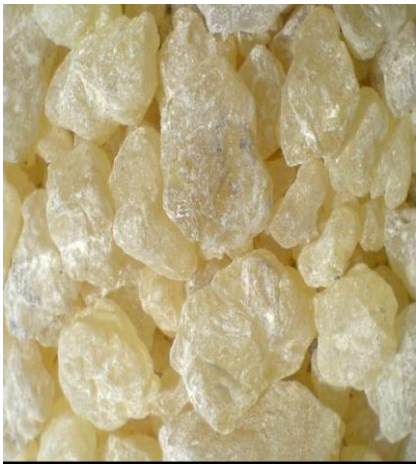
ILAVANGAM

SANNAILAVANGAPATTAI

EALAM

THIRATCHAI

KUKKIL



MALLIKAI CHOORANAM

PILOT STUDY

PILOT STUDY – DURATION OF DRUG ADMINSTRATION

AIM:

To evaluate the duration of drug administration

OBJECTIVE:

Anti-microbial activity of Mallikai choornam before and after treatment.

DRUG: MALLIKAI CHOORNAM (Internal)

(Ref; Kannusamypillai, chikicharathnadeepam.2007, page no; 122),

Dosage : ½ thola (6 grams) twice a day. Before food

Vehicle : Hot water

METHOD OF STUDY:

10 patient were included based on inclusion and exclusion criteria. From the first day , the trail drug MALLIKAI CHOORNAM –6gm twice a day with hot water before food will be given continuously for 5 days by the investigator in the OP department of Maruthuvam, NIS, Chennai. The patient's urine will be screened for culture on the 6th day. Depending on the outcome of the urine culture report further extending of duration of trail drug administration for 5 more days will be decided.

Inclusion criteria:

• Age: 19-59 years

• Sex: Both,

• Patient having any of three symptoms such as burning micturition , dysuria, abdominal pain, low backache

• Patient who's willing to go for urine culture&undergo routine blood investigation.

• Patients with Urine culture significant for bacteria or fungus (eg.Escherichia coli, klebsiella, enterococci, proteusmirablis staphylococci etc.....)

• Patient who is willing to participate in trial and signing in consent form

Exclusion Criteria:

- Pregnant
- H/O Diabetes mellitus
- H/O Sexually transmitted disease
- H/O Malignancy

S.NO	OPD NO	AGE/ SEX	0^{TH} DAY	5^{TH} DAY	10^{TH}DAY	15^{TH} DAY	$>15^{TH}$ DAY
1.	I 66998	30/F	Escherichia coli- +ve	No organism			
2.	I64308	34/F	Escherichia coli- +ve	Escherichia coli- +ve	Escherichia coli- +ve	No organism	
3.	I73212	45/F	Escherichia coli- +ve	Escherichia coli- +ve	Escherichia coli- +ve	No organism	
4.	I51276	35/F	Escherichia coli- +ve	Escherichia coli- +ve	No organism		
5.	I41931	37/F	Klebsiella - +ve	Klebsiella- +ve	No organism		
6.	I74296	38/F	Escherichia coli- +ve	No organism			
7.	I83754	32/M	Escherichia coli- +ve	Escherichia coli- +ve	Escherichia coli- +ve	No organism	
8.	I94838	21/M	Escherichia coli- +ve	Escherichia coli- +ve	klebsiella- +ve	Klebsiella- +ve	Klebsiella- +ve
9.	H61783	27/F	Escherichia coli- +ve	Escherichia coli- +ve	No organism		
10.	I92194	55/M	Escherichia coli- +ve	Escherichia coli- +ve	Escherichia coli- +ve	No organism	

Table:

DURATION	NO OF CASES	PERCENTAGE
5^{th} day	2	20
10^{th} day	3	30
15^{th} day	4	40
$>15^{th}$ day	1	10

CONCLUSION:

From this pilot study report shows out of 10 cases, 4 cases showed negative result in urine culture. For whom the trial drug given for a period of 15days.

OBSERVATION AND RESULTS

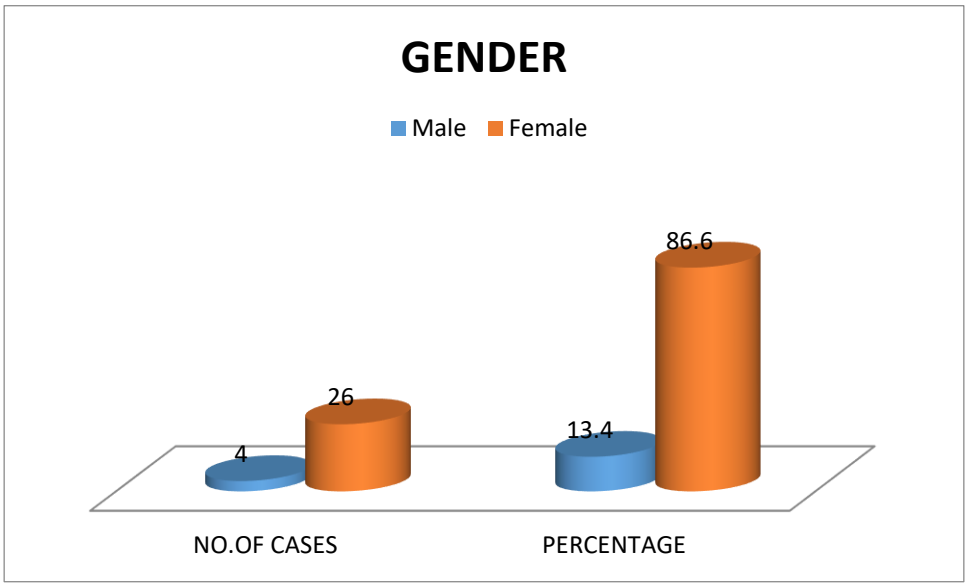
OBSERVATION AND RESULTS

I.DISTRIBUTION OF CASES BY GENDER

TABLE: 1

S.NO	GENDER	NO OF CASES	PERCENTAGE
1	Male	4	13.4
2	Female	26	86.6
	Total	**30**	**100**

Fig-1



Inference:

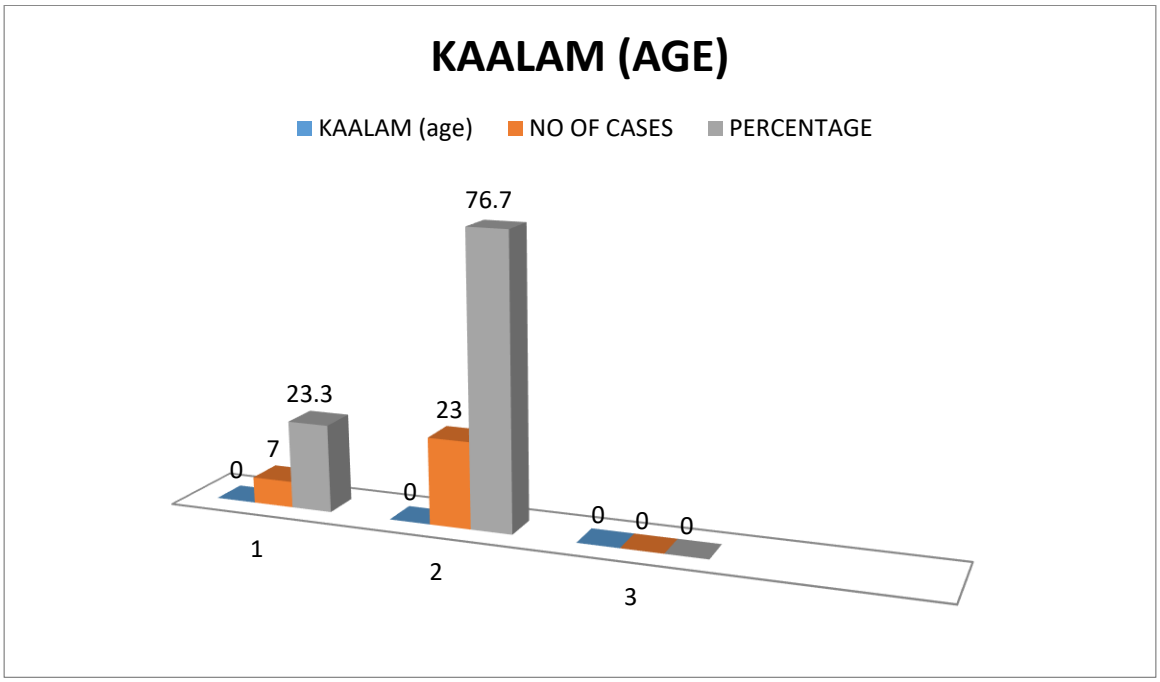
Among 30 cases 26 females and 4 males are affected.

II. DISTRIBUTION OF CASES BY KAALAM (According to age)

Table: 2

S. NO	KAALAM (age)	NO OF CASES	PERCENTAGE
1	Vadha kaalam (1-33 years)	7	23.3
2	Pitha kaalam (34-66 years)	23	76.7
3	Kaba kaalam (67-100years)	0	0

Fig-2



Inference:

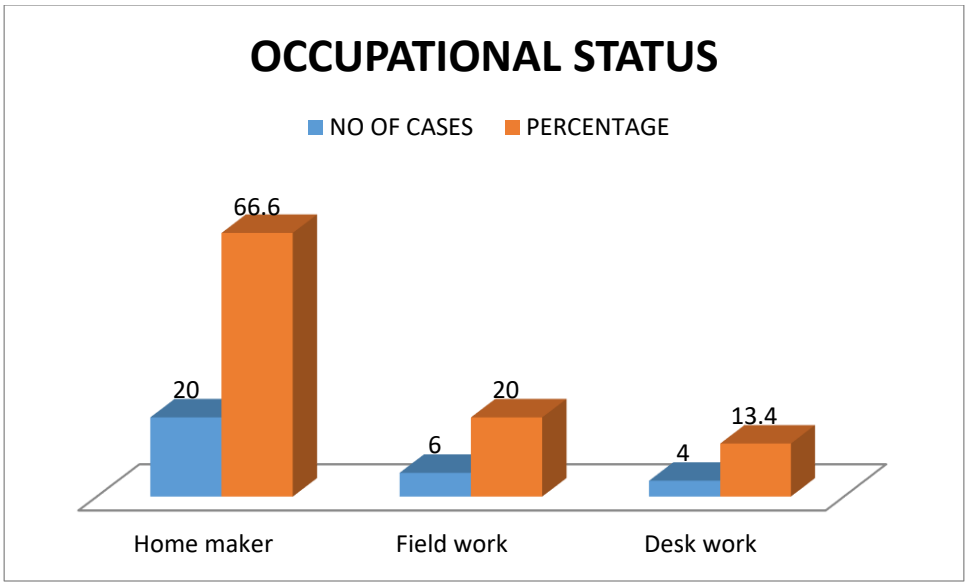
Among 30 cases 7cases were found to be in Vatha kaalam (1-33 years) and 23 cases were Pitha kaalam (34-66 years)

III.DISTRIBUTION OF CASES BY OCCUPATIONAL STATUS

Table: 3

S.NO	NATURE OF WORK	NO OF CASES	PERCENTAGE
1	Home maker	20	66.6
2	Field work	6	20
3	Desk work	4	13.4
	Total	**30**	**100**

Fig-3



Inference:

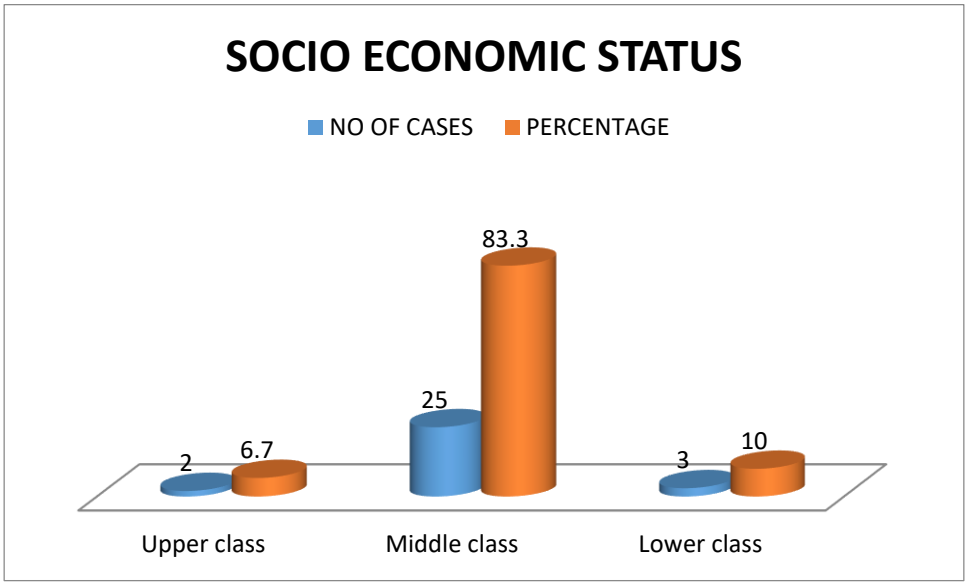
Home maker accounts for highest number of occurrence ie. 20 cases (66.6%)

IV.DISTRIBUTION OF CASES BY SOCIO ECONOMIC STATUS

Table: 4

S.NO	SOCIO-ECONOMIC STATUS	NO OF CASES	PERCENTAGE
1	Upper class	2	6.7
2	Middle class	25	83.3
3	Lower class	3	10
	Total	**30**	**100**

Fig-4



Inference:

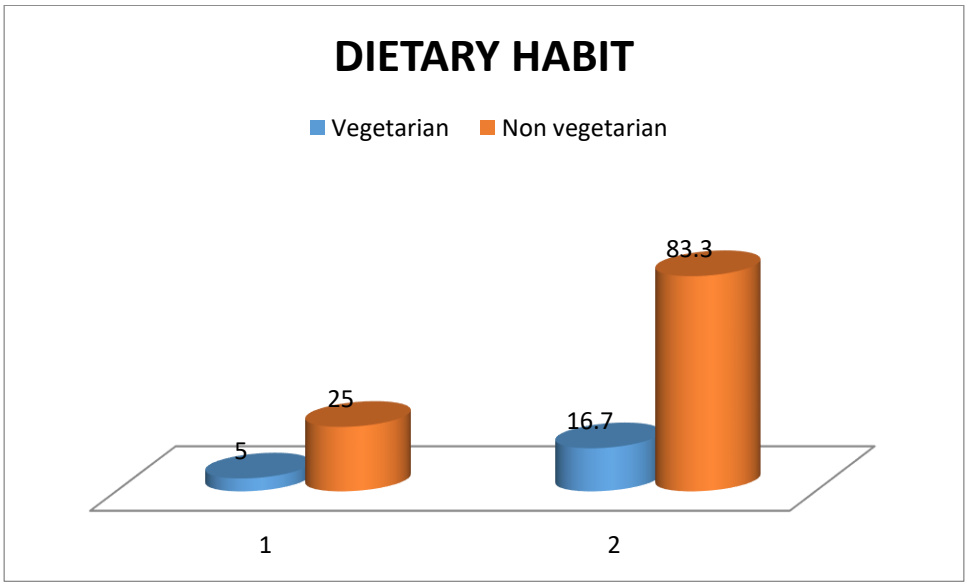
Among 30 cases, 25 cases (83.3%) were middle class, 3 cases (10%) were poor class and 2case (6.7%) were upper class.

V.DISTRIBUTION OF CASES BY DIETARY HABIT

Table: 5

S.NO	DIETARY HABIT	NO OF CASES	PERCENTAGE
1	Vegetarian	5	16.7
2	Non vegetarian	25	83.3
	Total	**30**	**100**

Fig-5



Inference:

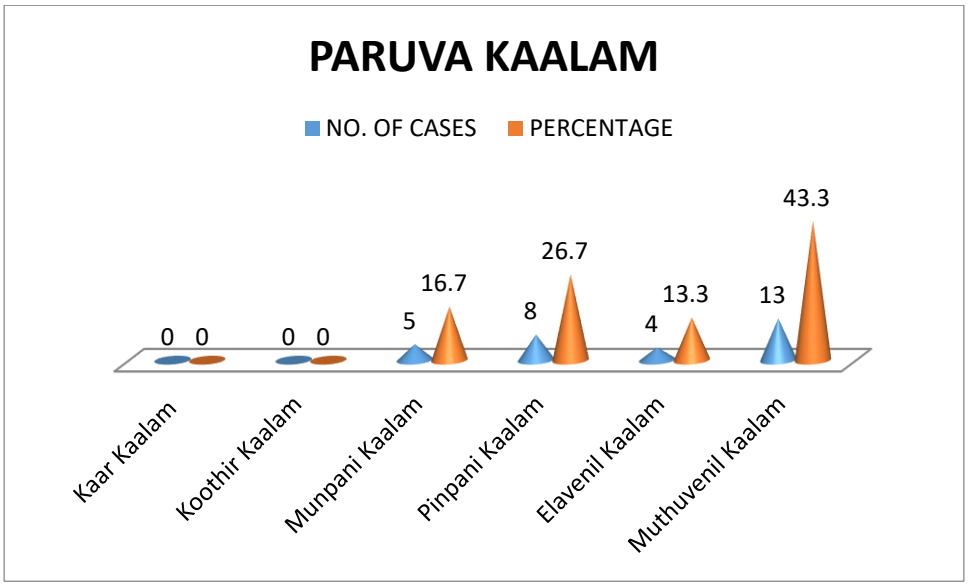
Among 30 cases, 25 (83.3%) cases were non vegetarians, 5 (16.7%) were vegetarians. Most of the cases were found in non-vegetarian category.

VI.DISTRIBUTION OF CASES BY PARUVA KAALAM

Table: 6

SL.NO	PARUVA KAALAM	NO. OF CASES	PERCENTAGE
1	Kaar Kaalam (Aug 18-Oct 17)	0	0
2	Koothir Kaalam (Oct 18-Dec 16)	0	0
3	Munpani Kaalam (Dec 17-Feb 12)	5	16.7
4	Pinpani Kaalam (Feb 13-Apr 13)	8	26.7
5	Elavenil Kaalam (Apr 14-Jun 14)	4	13.3
6	Muthuvenil Kaalam (Jun 15-Aug 17)	13	43.3
	Total	**30**	**100**

Fig-6



Inference:

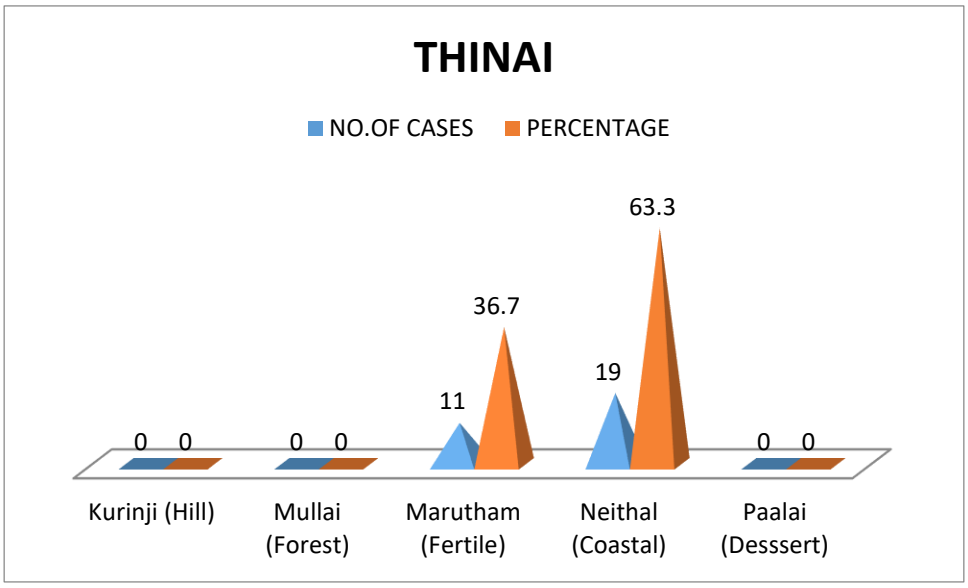
Among 30 cases 13 cases (43.3%) were affected in Muthuvenil Kaalam (June 15-Aug 17), 8 cases (26.7%) were affected in Pinpani Kalam (Feb13-April 13), 5cases (16.7%) were affected in Munpani kaalam (Dec 17- Feb12) and 4 cases (13.3%) were affected in elavenil Kalam (April 14-June14)

VII.DISTRIBUTION OF CASES BY THINAI (LAND)

Table: 7

S.NO	THINAI (LAND)	NO.OF CASES	PERCENTAGE
1	Kurinji (Hill)	0	0
2	Mullai (Forest)	0	0
3	Marutham (Fertile)	11	36.7
4	Neithal (Coastal)	19	63.3
5	Paalai (Desssert)	0	0
	Total	**30**	**100**

Fig-7



Inference:

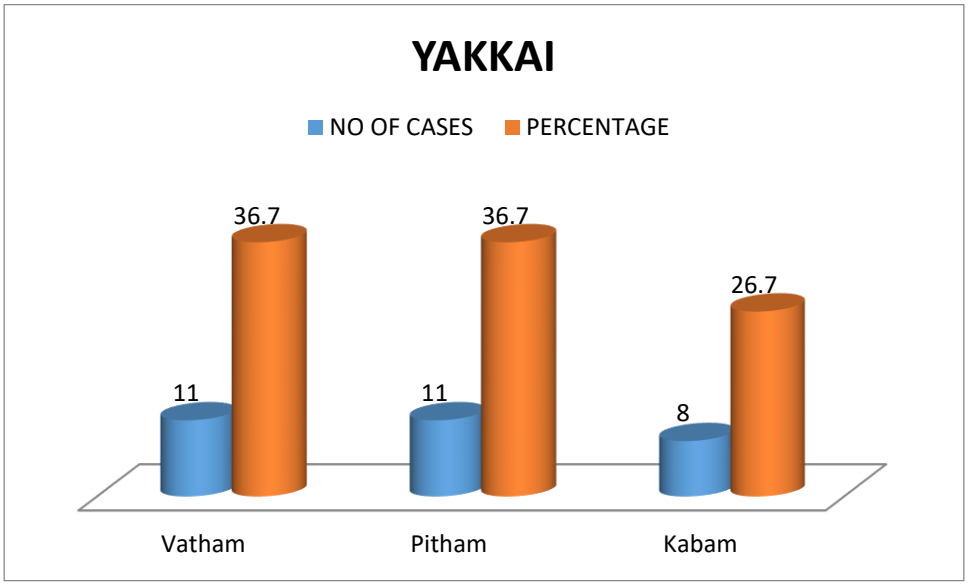
63.3% (19) of the cases were coming from Neithal thinai and 36.7% (11) cases were coming from Marutha thinai.

VIII.DISTRIBUTION OF CASES BY YAKKAI

Table: 8

S.NO	YAKKAI	NO OF CASES	PERCENTAGE
1	Vatham	11	36.7
2	Pitham	11	36.7
3	Kabam	8	26.7
	Total	**30**	**100**

Fig-8



Inference:

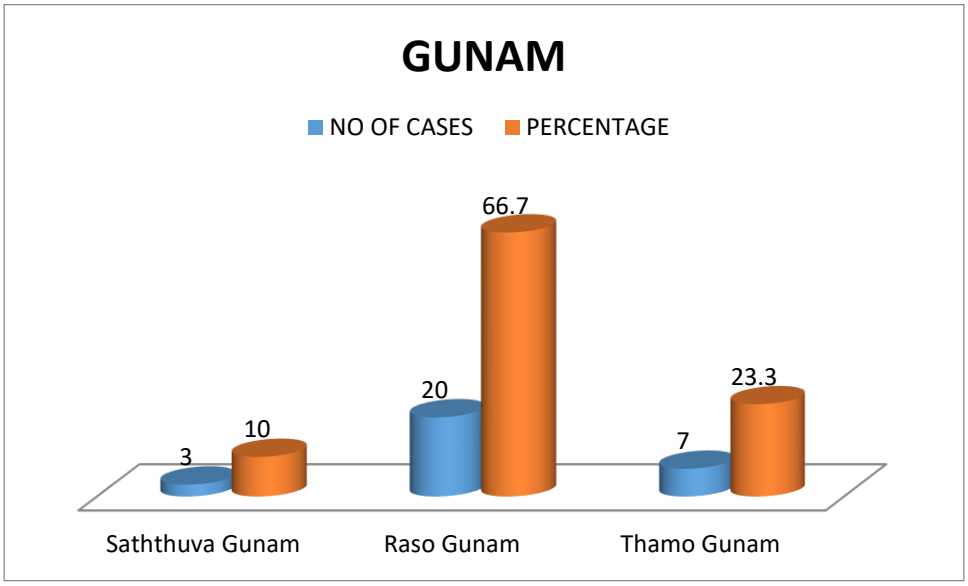
Among 30 cases 11 cases (36.7%) were Vatha thegi 11 cases (36.7%) were Pitha thegi, 8cases (26.6%) were Kaba thegi.

IX.DISTRIBUTION OF CASES BY GUNAM (CHARACTER)

Table: 9

S.NO	GUNAM	NO OF CASES	PERCENTAGE
1	Saththuva Gunam	3	10
2	Raso Gunam	20	66.7
3	Thamo Gunam	7	23.3
	Total	**30**	**100**

Fig-9



Inference:

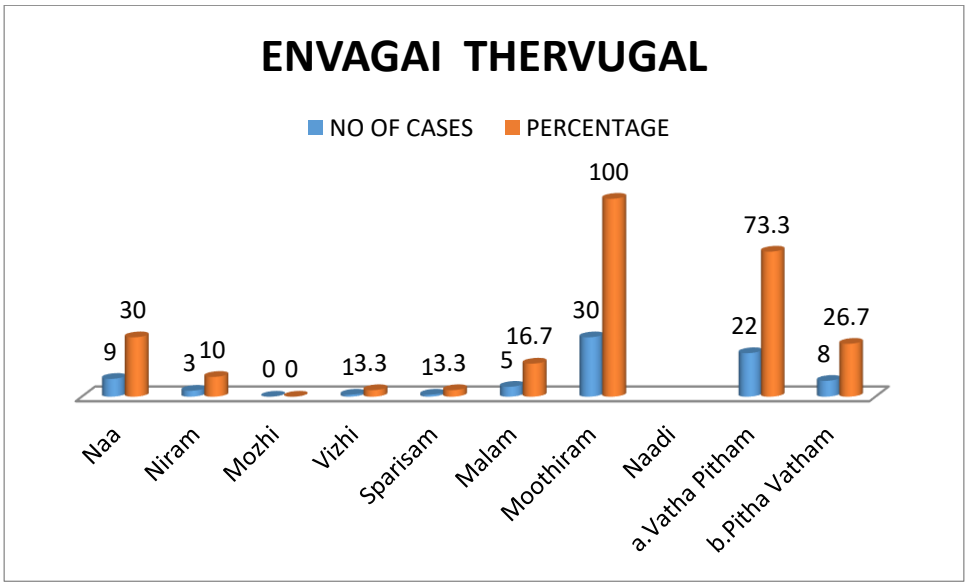
Among 30cases 20 cases (66.7%) possessed Rasogunam. 7 cases (23.3%) possessed Thamo gunam, 3 cases (10%) possessed Sathuva gunam.

X.DISTRIBUTION OF CASES BY ENVAGAI THERVUGAL

Table: 10

S.NO	EN VAGAI THERVUGAL	NO OF CASES	PERCENTAGE
1	Naa	9	30
2	Niram	3	10
3	Mozhi	0	0
4	Vizhi	1	3.3
5	Sparisam	1	3.3
6	Malam	5	16.7
7	Moothiram	30	100
8	Naadi a.Vatha Pitham b.Pitha Vatham	 22 8	 73.3 26.7

Fig-10



Inference:

In Envagai thervugal, Naadi was affected in all the 30 cases (100%), Naa was affected (coated,dryness) in 9 cases (30%), Niram was affected (Hyperpigmentation, pale) in 3 cases (10%), Vizhi was affected (pallor) in 1 case (3.3%), sparism was affected (temperature) in 1 case (3.3%).

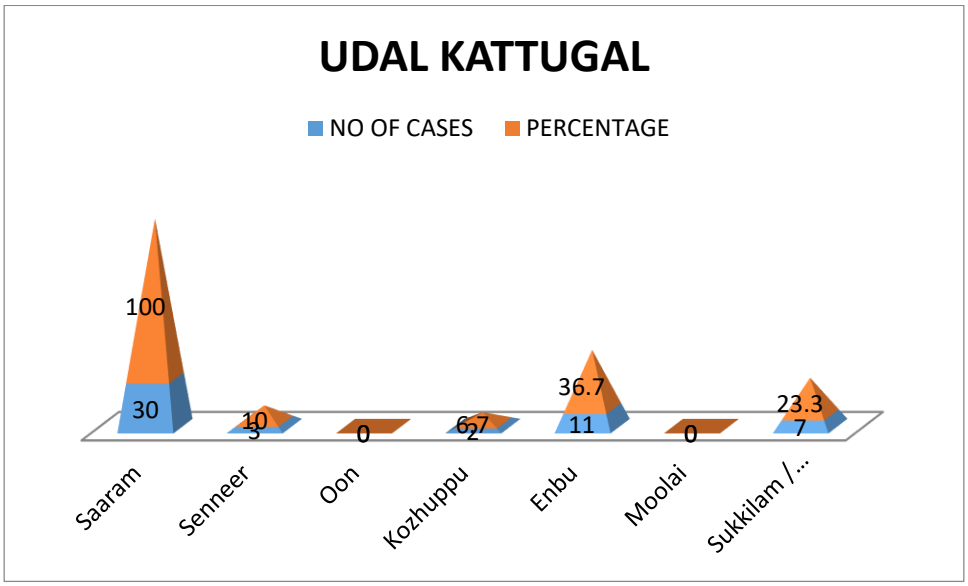
Moothiram was affected (Burning micturition, dysuria, hematuria) in 30 cases (100%), Malam was affected (Constipation) in 5 cases (16.7%).

XI.DISTRIBUTION OF CASES BY UDAL KATTUGAL

Table: 11

S.NO	UDAL KATTUGAL	NO OF CASES	PERCENTAGE
1	Saaram	30	100
2	Senneer	3	10
3	Oon	0	0
4	Kozhuppu	2	6.7
5	Enbu	11	36.7
6	Moolai	0	0
7	Sukkilam / Suronitham	7 (2/5)	23.3

Fig-11



Inference:

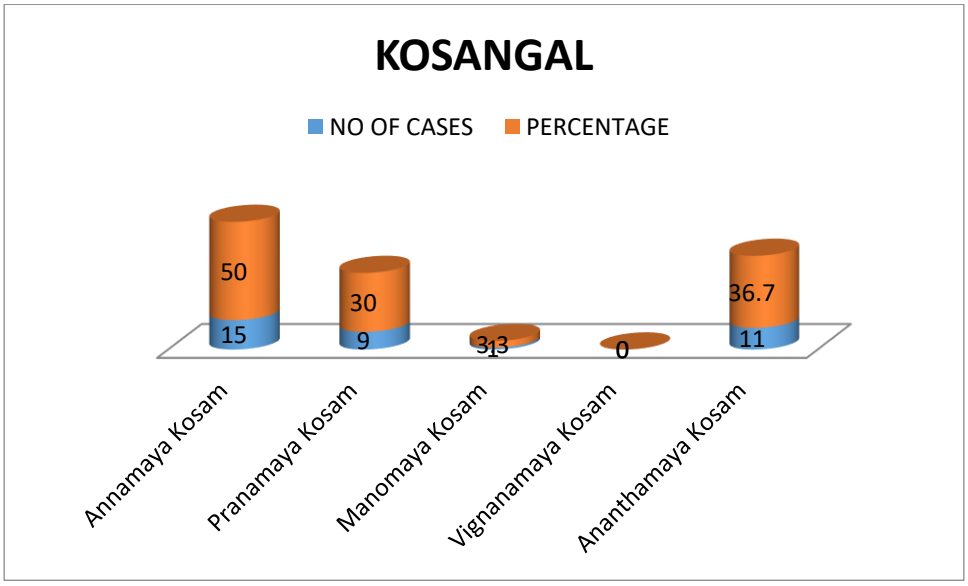
Among 30 patient Saaram was affected (indigestion, general tiredness) in 30 cases(100%), Seneer was affected (reduced Hb level) in 3case (10%), Kozhupu affected (hyperlipidemia) in 2 cases (6.7%), Enbu was affected (low back pain, knee joint pain) in 11 cases (36.7%), Sukkilam and suronitham were affected (male infertility, PCOS) in 7 cases (23.3%)

XII.DISTRIBUTION OF CASES BY KOSANGAL

Table: 12

KOSAM	NO OF CASES	PERCENTAGE
Annamaya Kosam	15	50
Pranamaya Kosam	9	30
Manomaya Kosam	1	3.3
Vignanamaya Kosam	0	0
Ananthamaya Kosam	11	36.7

Fig-12



Inference:

Among 30 cases Annamaya kosam was affected (abdominal pain, anorexia), in 15 cases (50%), Pranamaya kosam was affected (dyspnea, cough) in 9 cases (30%),

Manomaya kosam was affected (stress) in 1 case (3.3%), Ananthamaya kosam was affected (sleep disturbance) in 11 cases (36.7%), Vinyanamaya kosam normal in all.

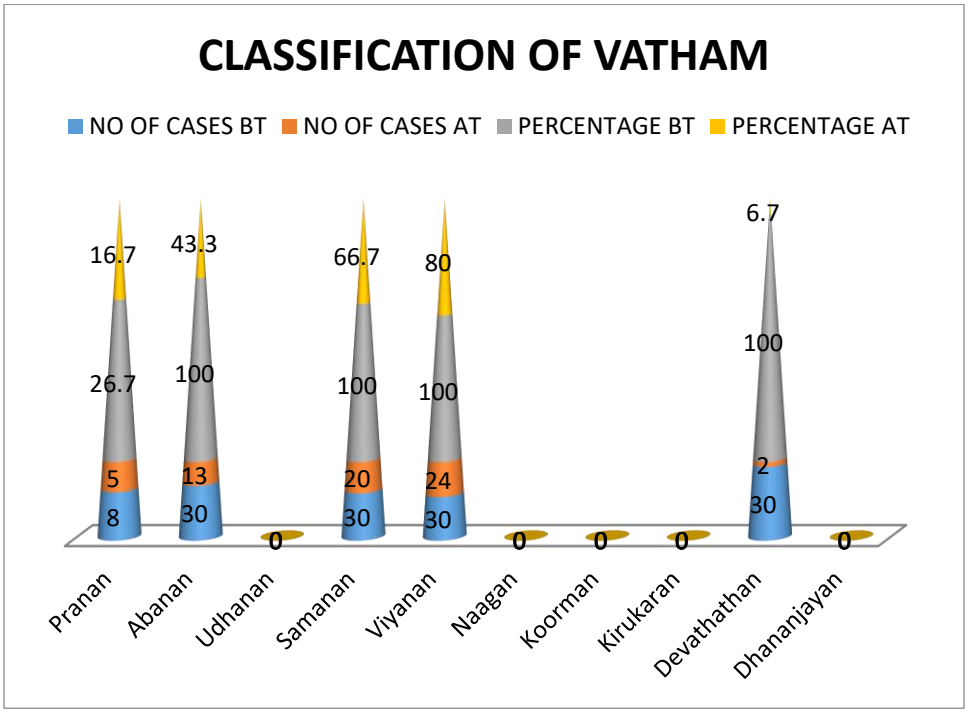
XIII.DISTRIBUTION OF CASES BY UYIR THATHUKKAL

A.VATHAM

Table: 13a

SL.NO	CLASSIFICATION OF VATHAM	NO OF CASES		PERCENTAGE	
		BT	AT	BT	AT
1	Pranan	8	5	26.7	16.7
2	Abanan	30	13	100	43.3
3	Udhanan	0	0	0	0
4	Samanan	30	20	100	66.7
5	Viyanan	30	24	100	80
6	Naagan	0	0	0	0
7	Koorman	0	0	0	0
8	Kirukaran	0	0	0	0
9	Devathathan	30	2	100	6.7
10	Dhananjayan	0	0	0	0

Fig-13a



Inference:

Among 30 cases Pranan was affected (dyspnea, wheezing) in 8 cases (26.7%), Abanan was affected (burning miturition, dysuria) in 30 cases (100%), Samanan affected (derangement of other vayus), and Viyanan were affected (low back pain, abdominal pain) in all 30 cases (100%), devathathan was affected (general tiredness) in all 30 cases (100%) in before treatment.

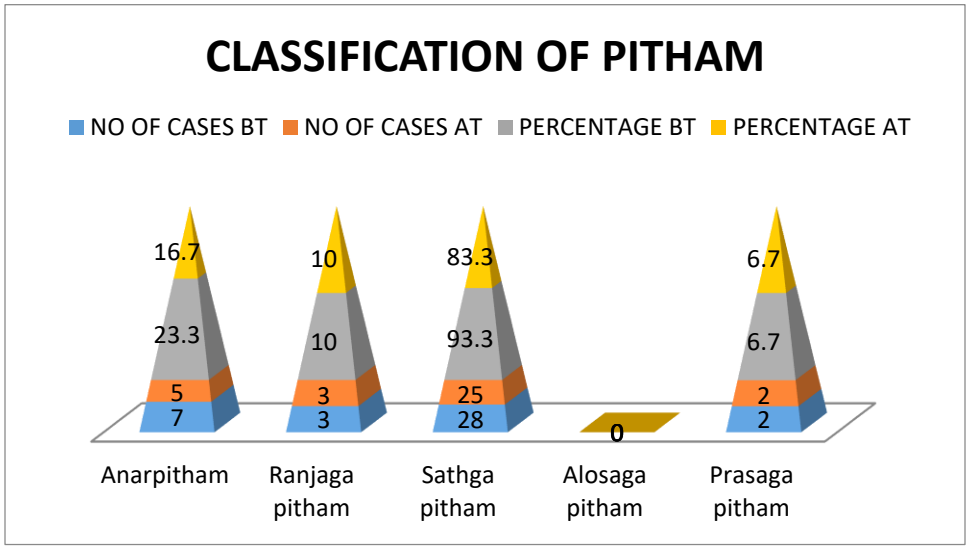
In after treatment, 5 cases was affected (16.7%) in pranan (dyspnea, wheezing), 13 cases was affected (43.3%) in Abanan (burning micturition, dysuria), 20 cases (66.7%) were affected in Samanan, 24 cases (80%) were affected in Viyanan, 2 cases (6.7%) affected in Devathathan.

B.PITHAM

Table: 13b

S.NO	CLASSIFICATION OF PITHAM	NO OF CASES		PERCENTAGE	
		BT	AT	BT	AT
1	Anarpitham	7	5	23.3	16.7
2	Ranjaga pitham	3	3	10	10
3	Sathga pitham	28	25	93.3	83.3
4	Alosaga pitham	0	0	0	0
5	Prasaga pitham	2	2	6.7	6.7

Fig-13b



Inference:

Among 30 cases Analpitham was affected (loss of appetite, abdominal pain) in 7 cases (23.3%),Ranjaga pitham (low Hb) was affected in 3 cases(10%), Sathaga pitham (inability to doing work) was affected in 28 cases (93.3%), Prasaka pitham (hyperpigmentation) was affected in 2 cases (6.7%) at before treatment.

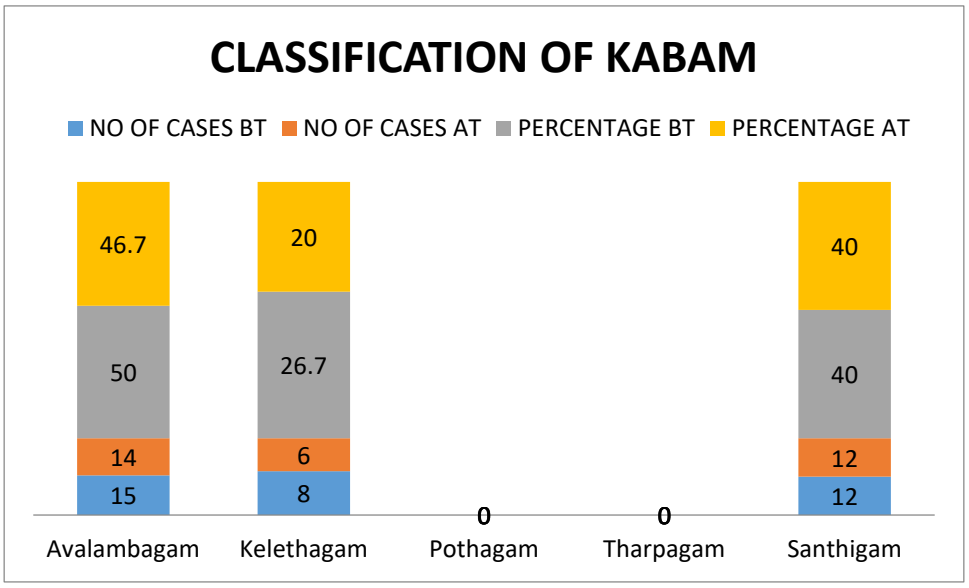
In after treatment, 5 cases (16.7%) were affected in Analpitham (loss of appetite, abdominal pain), 3 cases (10%) were affected in Ranjaga pitham (low Hb), 25 cases (83.3) were affected in Sathagapitham (inability to doing work), 2 cases (6.7%) were affected in Prasaga pitham.

C.KABAM

Table: 13c

S.NO	CLASSIFICATION OF KABAM	NO OF CASES		PERCENTAGE	
		BT	AT	BT	AT
1	Avalambagam	15	14	50	46.7
2	Kelethagam	8	6	26.7	20
3	Pothagam	0	0	0	0
4	Tharpagam	0	0	0	0
5	Santhigam	12	12	40	40

Fig-13c



Inference:

Avalambagam was affected (derangement of other type of kabam), in 15 cases (50%), Kilethagam was affected (loss of appetite) in 5 cases (26.7%), Santhigam affected (knee joint pain) was affected in 12 cases (40%) at before treatment.

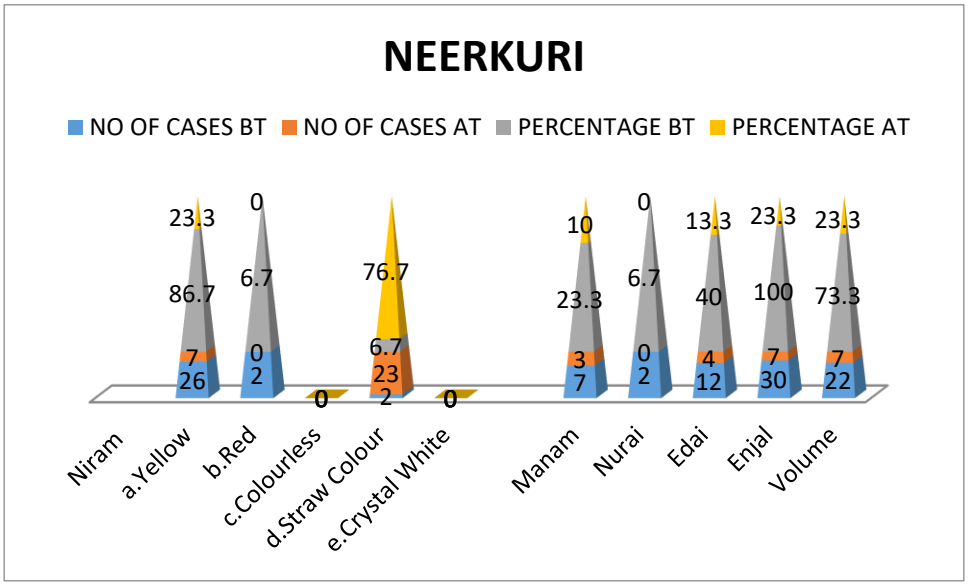
In after treatment, 14 cases (46.7%) in Avalambagam (derangement of other type of kabam), 6 cases (20%) were affected in Kelethagam (loss of appetite), 12 cases (40%) were affected in Santhiga pitham.

XIV.DISTRIBUTION OF CASES BY NEERKURI

Table: 14

S.NO	NEERKURI	NO OF CASES		PERCENTAGE	
		BT	AT	BT	AT
1	Niram				
	a.Yellow	26	7	86.7	23.3
	b.Red	2	0	6.7	0
	c.colourless	0	0	0	0
	d.Straw Colour	2	23	6.7	76.7
	e.Crystal White	0	0	0	0
2	Manam	7	3	23.3	10
3	Nurai	2	0	6.7	0
4	Edai	12	4	40	13.3
5	Enjal	30	7	100	23.3
6	Volume	22	7	73.3	23.3

Fig-14



.

Inference:

In before treatment yellow color urine was observed in 26 cases (86.7%), red color urine was observed in 2 cases (6.7%), straw color urine was observed in 2 cases (6.7%). In after treatment yellow color urine was observed in 7 cases (23.3%), straw color urine was observed in 23 cases (76.7%).

Manam – Foul smell was observed in 7 cases (23.3%)

Nurai - Froth was observed only in 2 cases (6.6%)

Edai - Affected in 12 cases (40%)

Enjal - present in 30 cases (100%)

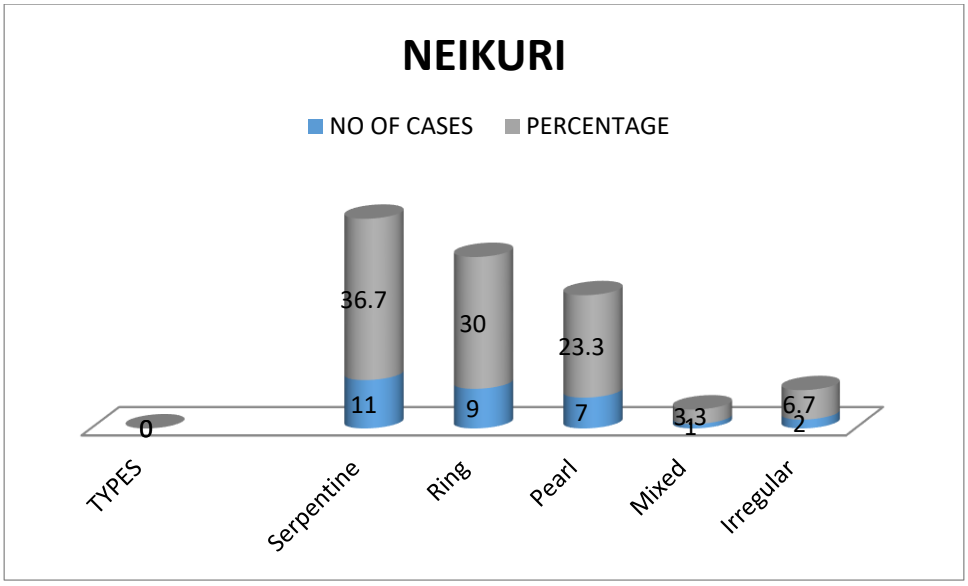
Volume - The volume of urine was decreased in 22 cases (73.3%).

XV.DISTRIBUTION OF CASES BY NEIKURI

Table: 15

S.NO	TYPES	NO OF CASES	PERCENTAGE
1	Serpentine	11	36.7
2	Ring	9	30
3	Pearl	7	23.3
4	Mixed	1	3.3
5	Irregular	2	6.7

Fig-15



Inference:

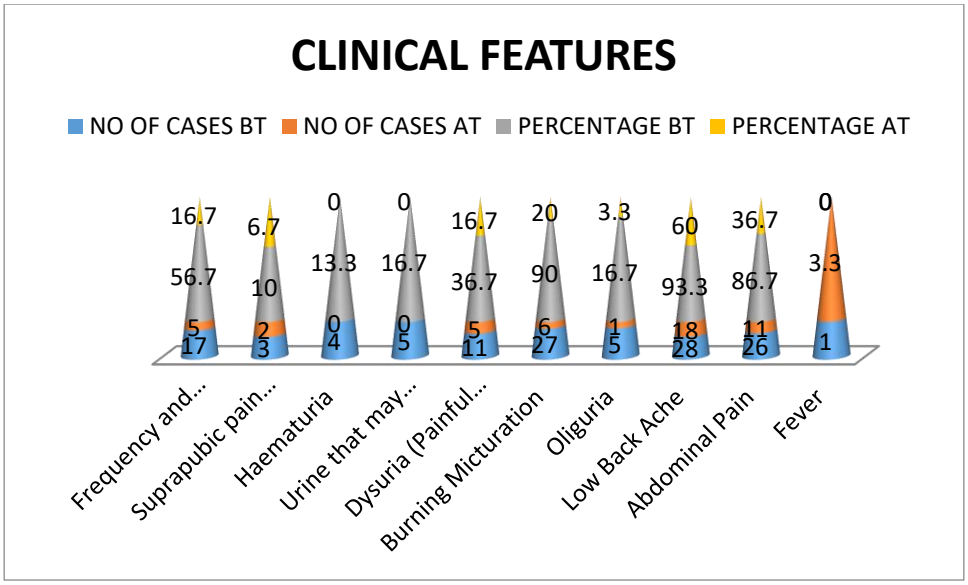
Among 30 cases the Neikuri in 11 cases (36.6%) was observed as serpentine shape (Vatha neer), In 9 cases (30%) was observed as a ring shaped (Pitha neer), in 7 cases (23.3%) it was observed as pearl shaped (Kaba neer), in 1 case (3.3%) it observed in mixed shape (Vatha pitham), in 2 cases was (6.7%) observed as irregular shape.

XVI.DISTRIBUTION OF CASES BY CLINICAL FEATURES

Table: 16

S.NO	CLINICAL FEATURES	NO OF CASES		PERCENTAGE	
		BT	AT	BT	AT
1	Frequency and urgency of micturition	17	5	56.7	16.7
2	Suprapubic pain and tenderness	3	2	10	6.7
3	Haematuria	4	0	13.3	0
4	Urine that may appear cloudy and have an unpleasant odour	5	0	16.7	0
5	Dysuria (Painful Voiding)	11	5	36.7	16.7
6	Burning Micturation	27	6	90	20
7	Oliguria	5	1	16.7	3.3
8	Low Back Ache	28	18	93.3	60
9	Abdominal Pain	26	11	86.7	36.7
10	Fever	1	3.3	0	0

Fig-16



Inference:

In clinical features 17 cases (56.7%) had frequency and urgency of micturition, 3 cases (10%) had supra pubic pain and tenderness, 4 cases (13. 3%) had hematuria, 5 cases (16.7%) had cloudy and unpleasant odor urine, 11 cases (36.7%) had dysuria, 27 cases (90%) had burning micturition, 5 cases (16.7%) had oliguria, 28 cases (93.3%) had low back pain, 26 cases (86.7%) had abdominal pain, 1 case (3.3%) had fever at befpre treatment.

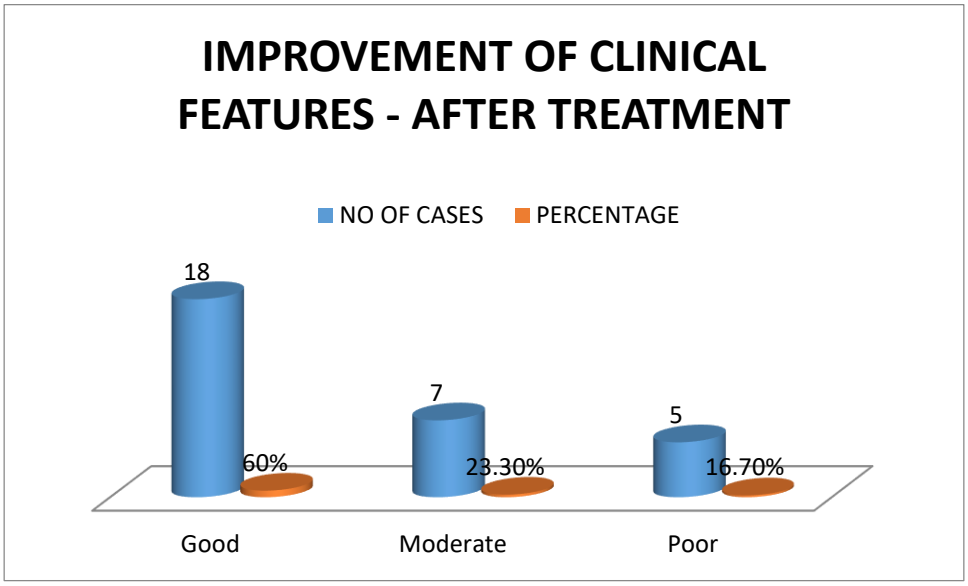
In after treatment, 5 cases (16.7%) had frequency and urgency of micturition, 2 cases (6.7%) had supra pubic pain and tenderness, 5 cases (16.7%) had dysuria, 6 cases (20%) had burning micturition, 1 case (3.3%) had oliguria, 18 cases (60%) had low back ache, 11 cases (36.7%) had abdominal pain, hematuria and urine may be appear cloudy and have an unpleasant odor negative.

XVII.IMPROVEMENT OF CLINICAL FEATURES AFTER TREATMENT

Table: 17

S.NO	IMPROVEMENT	NO OF CASES	PERCENTAGE
1	Good	18	60%
2	Moderate	7	23.3%
3	Poor	5	16.7%
	Total	**30**	**100%**

Fig-17



Inference:

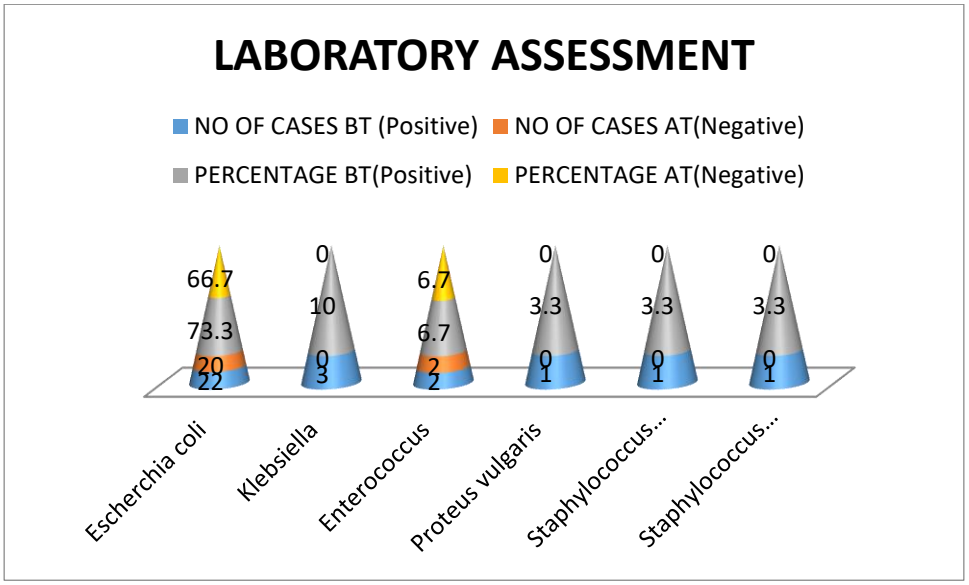
Among 30 cases 18 cases (60%) has clinically good improvement (symptoms completely relieved after treatment with test drug), 7 cases (23.3%) had moderately improved (symptoms slightly reduced), 5 cases (16.6%) had poor improvement (symptoms persists)

XVIII.LABORATORY ASSESSMENT

Table: 18

S.NO	ORGANISM	NO OF CASES		PERCENTAGE	
		BT (Positive)	AT(Negative)	BT(Positive)	AT(Negative)
1	Escherchia coli	22	20	73.3	66.7
2	Klebsiella	3	0	10	0
3	Enterococcus	2	2	6.7	6.7
4	Proteus vulgaris	1	0	3.3	0
5	Staphylococcus epidermis	1	0	3.3	0
6	Staphylococcus aureus	1	0	3.3	0

Fig-18



Inference:

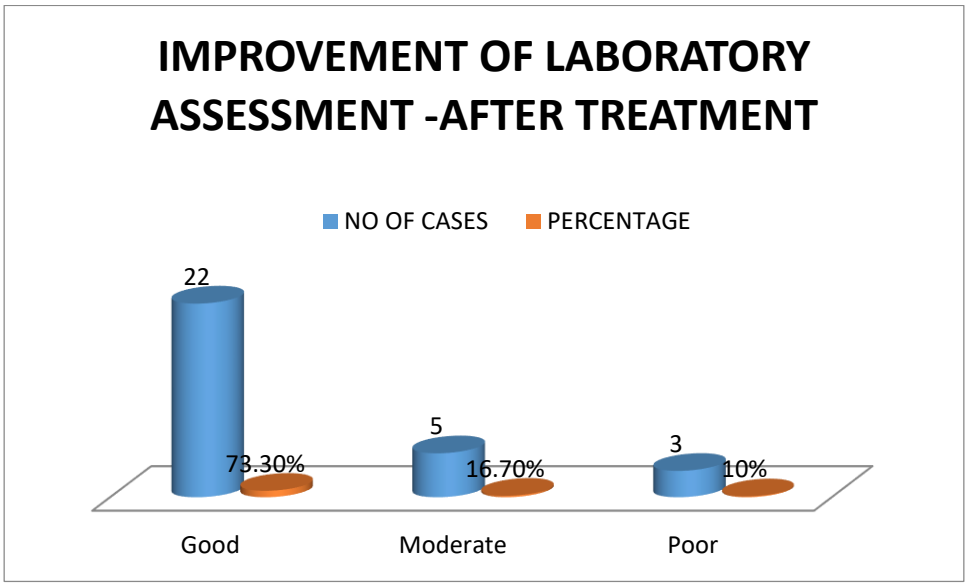
Among 30 cases Escherichia coli positive for 22 cases (73.3%) in before treatment, this organism negative for 20 cases (96.6%) in after treatment, Klebsiella positive for 3 cases (10%) in before treatment, no improvement in after treatment, Enterococcus positive for 2 cases (6.7%), this organism negative for both cases (6.7%), Proteus vulgaris positive for 1 case (3.3%), no improvement in after treatment, Staphylococcus epidermis positive for 1 case (3.3%), no improvement in after treatment, Staphylococcus aures positive for 1 case (3.3%), no improvement in after treatment

XIX.IMPROVEMENT OF LABORATORY ASSESSMENT AFTER TREATMENT

Table: 19

S.NO	IMPROVEMENT	NO OF CASES	PERCENTAGE
1	Good	22	73.3%
2	Moderate	5	16.7%
3	Poor	3	10%
	Total	**30**	**100%**

Fig-19



Inference:

Out of 30 cases, Good improvement in 22 cases (73.3%), Moderate improvement in 5 cases (10.7%), Poor improvement in 3 cases (10%).

Good – Urine culture negative (no organism)

Moderate – colony count slightly reduced

Poor – additional organism found

STATISTICAL ANALYSIS

STATISTICAL ANALYSIS FOR CLINICAL STUDY

All collected data were entered into the MS excel software using different columns as variable and rows as patients. SPSS software was used to perform statistical analysis. Basic descriptive statistics include frequency distribution and cross-tabulations were performed. The quantity variables were expressed as Mean± Standard Deviation and qualitative data as percentage. A probability value of <0.05 was considered it indicate as statistical significance. Paired‘t’ test was performed for determining between before and after treatment.

PAIRED SAMPLE STATISTICS (CLINICAL SYMPTOMS BEFORE AND AFTER TREATMENT)

Table: 1

Variable	Sample	Mean ± SD	‘t’ value	P value
Before treatment	30	4.23±1.07	7.685	<0.0001
After treatment	30	1.56±1.56		

Inference:

The Mean ± Standard Deviation score at before and after treatment were 4.23±1.07 and 1.56±1.56 respectively which is extremely significant. (t value= 7.685, p = <0.0001)

PAIRED SAMPLE STATISTICS (TOTAL WBC COUNT BEFORE AND AFTER TREATMENT)

Table: 2

Variable	Sample	Mean±SD	‘t’ value	P value
Before treatment	30	7720±1325.45	2.213	0.0308
After treatment	30	6893±1559.31		

Inference:

The Mean ± Standard deviation of Total WBC at before and after treatment were 7720±1325.45 and 6893±1559.31 respectively which is significant (‘t’value=2.213, p value=0.0308)

PAIRED SAMPLE STATISTICS (ESR BEFORE AND AFTER TREATMENT)

Table: 3

Variable	Sample	Mean ±SD	't'value	P value
Before treatment (1/2hr)	30	15.63±10.23	1.056	0.292
After treatment (1/2hr)	30	12.83±10.27		
Before treatment (1hr)	30	30.83±20.73	1.740	0.0872
After treatment (1hr	30	21.5±20.82		

Inference:

The Mean± Standard Deviation of ESR at before and after treatment were 15.63±10.23 and 12.83±10.27 for ½ hour and 30.83±20.73 & 21.5±20.82 for 1 hour respectively which no significant ('t'value=1.056, p value=0.292 for ½ hr. 't' value=1.740, p value= 0.0872)

DRUG ANALYSIS REPORT

BIOCHEMICAL ANALYSIS OF MALLIKAI CHOORNAM

Preparation of extract:

10g of mallikai choornam is measured accurately and placed in 250ml of clean beaker and added with 50ml of distilled water. Then it is boiled well for about 10 minutes. Then it is cooled and filtered in a 100ml volumetric flask and made up to 100ml with distilled water.

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1	Appearance of sample	Dark brown in color	
2.	**Solubility:** a. A little of the sample is shaken well with distilled water.	Sparingly soluble	Presence of silicate
3.	**Action of heat:** A small amount of the sample is taken in a dry test tube and heated greatly at first and then strong.	No brown fumes No white fumes evolved	Absence of nitrate Absence of carbonate.
4.	**Flame test:** A small amount of the sample is made into paste with con.HCL in a watch glass and introduced into non luminous part of the Bunsen flame.	No bluish green flame appeared.	Absence of copper
5.	**Ash test:** A filter paper is soaked into a mixture of sample and cobalt nitrate solution and introduced into the Bunsen flame and ignited.	Yellow color flame	Presence of sodium.

I	TEST FOR ACID RADICLES:		
1.	**Test for sulphate**: 2ml of above prepared extract is taken in the test tube to this added 2ml of 4% ammonium oxalate solution.	No cloudy appearance	Absence of Sulphate
2.	**Test for Chloride:** 2ml of the above prepared extract is added with dil. HNO_3 till the effervescence ceases. Then 2ml of silver nitrate solution is added.	No cloudy appearance	Absence of chloride
3.	**Test for Phosphate**: 2ml of the extract is treated with 2ml of ammonium molybdate solution and 2ml of con.HNO_3	No cloudy yellow appearance	Absence of phosphate
4.	**Test for corbonate:** 2ml of the extract is treated with 2ml magnesium sulphate solution	No Cloudy appearance	Absence of carbonate
5.	**Test for nitrate**: 1 drop of the substance is heated with copper tunics and concentrated H_2SO_4 and viewed the test tube vertically down.	No characteristic changes.	Absence of nitrate.
6.	**Test for sulphide:** 1ml of the substance is treated with 2ml of con.HCL.	Rotten egg smelling gas evolved	Presence of sulphide.

7.	**Test for Fluride & Oxalte**: 2ml of the extract is added with 2ml of dil.Acetic acid and 2ml calcium chloride solution and heated.	No cloudy appearance	Absence of Fluride and Oxalate.
8.	**Test for Nitrite**: 3 drops of the extract is placed on filter paper on that 2 drops of acetic acid and 2 drops Benzidine solution is placed.	No characteristic changes.	Absence of Nitrite.
9.	**Test for Borate:** 2 pinches of the substance is made into paste by using sulphuric acid and alcohol (95%) and introducer into the blue flame.	Bluish green color flame appeared.	Presence of Borate.
II.	TEST FOR BASIC RADICLES:		
1.	**Test for Lead:** 2ml of the extract is added with 2ml of potassium iodide solution.	No yellow precipitate is obtained.	Absence of Lead.
2.	**Test for copper**: One pinch of substance is made into paste with con HCL in a watch glass and introduced into the non-luminous part of the flame.	No blue color flame.	Absence of copper
3.	**Test for Aluminum**: To the 2ml of the extract sodium hydroxide is added in drops to excess.	No characteristic changes	Absence of aluminum.

4.	**Test for Iron**: a. To the 2ml of extract add 2ml of ammonium thiocynate solution. b. To the 2ml of extract add 2ml ammonium thiocynate solution and 2ml of con HNO_3 is added.	Mild red color not appeared Blood red color not appeared.	Abscence of iron Absence of Iron
5.	**Test for Zinc**: To 2ml of the extract sodium hydroxide solution is added in drops to excess.	White precipitate appeared.	Absence of Zinc
6.	**Test for Calcium**: 2ml of the extract is added with 2ml of 4% ammonium oxalate solution.	No cloudy appearance.	Absence of calcium.
7.	**Test for Magnesium**: To 2ml of extract sodium hydroxide solution is added in drops to excess.	White precipitate is not obtained	Absence of magnesium.
8.	**Test for Ammonium**: To 2ml of extract few ml of Nessler's reagent and excess of sodium hydroxide solution are added.	No brown color appeared.	Absence of ammonium.
9.	**Test for potassium**: 1ml of substance is treated with 2ml of sodium and then	yellowish precipitate is obtained	Presence of potassium.

	treated with 2ml of cobalt nitrate in 30% glacial acetic acid.		
10.	**Test for Sodium**: 2 pinches of the substance is made into paste by using HCL and introduced into the blue flame of Bunsen burner.	No yellow color flame appeared.	Absence of Sodium.
11.	**Test for Mercury**: 2ml of the extract is treated with 2ml of sodium hydroxide solution.	No yellow precipitate is appeared.	Absence of mercury.
12.	**Test for Arsenic**: 2ml of the extract is treated with 2ml of sodium hydroxide solution.	No brownish red precipitate is obtained.	Absence of Arsenic.
III.	MISCELLANIOUS		
1.	**Test for Starch:** 2ml of the extract is treated with weak iodine solution.	No blue color developed	Absence of starch.
2.	**Test for reducing sugar:** 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for two minutes and added 8 to 10 drops of the extract and again boil it for 2 minutes. The color are noted.	No brick red color developed.	Absence of reducing sugar.
3.	**Test for alkaloids:** 2ml of extract is treated with 2 ml of picric acid.	Yellow color developed.	Presence of alkaloid.

4.	**Test for Tannic acid:** 2ml of extract is treated with 2ml of ferric chloride solution.	Black color precipitate is obtained.	Presence of Tannic acid.
5.	**Test for Unsaturated compounds**: To the 2ml of extract 2ml of potassium permanganate solution is added.	Potassium permanganate is not decolorized.	Absence of Unsaturated compound.
6.	**Test for amino acids:** 2 drops of the extract is placed on a filter paper and dried well.	No violet color developed.	Absence of amino acids.
7.	**Test for type of Compound**: 2ml of the extract is treated 2ml of ferric chloride solution.	No green developed. No red color developed. No violet color developed. No blue color developed.	Absence of oxyquninole epinephrine and pyro catechol. Anti pyrine, Aliphatic amino acids and meconic acid are absent. Apo morphine salicylate and Resorcinol are absent. Morphine, phenol cresol and hydro quinine are absent.

Result:

The chemical study of trial drug reveals **silicate, sodium, sulphide, borate, potassium, tannic acid**

THE PREMILINARY PHYTOCEMICAL SCREENING TEST

Mallikai Chooranam

The preliminary phytochemical screening test was carried out for each extract of Mallikai chooranam as per the standard procedure.

Decoction of Alkaloids

Extract was dissolved individually in diluted hydrochloric acid and filtered.

Mayer test

2 ml of extract was treated with few drops of Mayer's reagent. Formation of brown/reddish precipitate indicate the presence of alkaloids.

Detection of Carbohydrate

Extract was dissolved individually in 5 ml distilled water and filtered .The filter were used to test for Carbohydrates.

Molisch's test

2ml of filtrate was treated with few drops of alcoholic Alpha Naphthol solution in a test tube. Formation of the violet ring at the junction indicates presence of carbohydrates.

Benedict's test

Filtrate was treated with Benedict's reagent and gently heated .Orange red precipitate indicate the presence of reducing sugars.

Detection of Saponins

Froth test

Extract was diluted with diluted water to 20 ml and this was shaken in a graduated cylinder for 15 minutes. Formation of 1 centimeter layer of foam indicates the presence of Saponins.

Foam test

0.5 Gram extract was shaken with 2ml of water .If foam produced persists for 10 minutes, it indicates the presence of Saponins.

Detection of Phytosterols

Salkowski's test

Extract was treated with chloroform and filtered; the filtrates were treated with few drops of concentrated Sulphuric acid, shaken and allowed to stand for few minutes. Golden yellow color indicates the presence of triterpense.

Detection of Phenols

Ferric chloride test

2 ml of extract was treated with 3-4 drops of ferric chlorides solution .Formation of bluish black color indicate the Tannins.

Detection of Tannins

Gelatin test

To the extract, 1% of gelatin solution containing sodium chloride was added; Formation of white precipitate indicates the presence of Tannins.

Decoction of Flavonoids

Alkaline reagent test

Extract was treated with few drops of 10 % of sodium hydroxide ,formation of intense yellow color then on addition of diluted hydrochloric acid it become colourless,it indicate the presence of Flavonoids.

Lead acetate test

Extract was treated with few drops of lead acetate solution; yellow color precipitate indicate presence of Flavonoids.

Detection of Diterpenes

Copper acetate test

Extract was dissolved in water and treated with 2-3 drops of Copper Acetate solution. Formation of emerald green color indicates the presence of diterpenes.

Test for gum and mucilage

The extract was dissolved in 10 ml of distilled water and to this 2 ml of absolute alcohol with the constant stirring white cloudy precipitate indicate the presence of gum and mucilage.

Detection of Glycosides

Liebermannn's test

2 ml of extract was treated with 2 ml of chloroform and 2 ml of acetic acid, Violet color change into green indicates the presence of Glycosides.

Test for Quinones

Extract was treated with Sodium hydroxide blue and red precipitate indicates the presence of Quinones.

Result

The preliminary phytochemical studies of extract of *Mallikai Choornam* in various solvents were done using standard procedures. The result were presented in table. The present study reveals that the bioactive compound were present in all the extract of *Mallikai chooranam* .

S.No	Phytochemicals	Test name	H_2O ext
1.	Alkaloids	Mayer's test	+ve
		Wagner's test	+ve
2.	Carbohydrates	Molisch's test	-ve
		Benedict's test	+ve
3.	Glycosides	Libermann Burchard's test	-ve
4.	Saponins	Froth test	+ve
		Foam test	+ve
5.	Phytosterols	Salkowski's test	-ve
6.	Phenols	Ferric chloride test	+ve
7.	Tannins	Gelatin test	-ve

8.	Flavonoids	Alkaline Reagent Test	+ve
		Lead acetate test	+ve
9.	Proteins and Amino acid	Xanthoproteic test	+ve
10.	Diterpenes	Copper acetate test	+ve
11.	Gum and Mucillage	Extract+ Alcohol	-ve
12.	Quinone	NAOH+ Extract	+ve

PHYSIOCHEMICAL ANALYSIS OF MALLIKAI CHOORNAM

1. Moisture content

An accurately weighted 1g of Mallikai choornam formulation was taken in a tarred glass bottle. The crude drug was heated at 105^0C in an oven till a constant weight. Percentage moisture content of the sample was calculated with reference to the shade dried material.

2. Determination of total ash

Weighted accurately 1g of Mallikai chooranam formulation was added in crucible at a temperature 600^0C in a muffle furnace till carbon free ash was obtained. It was calculated with reference to the air dried drug.

3. Determination of water insoluble ash

Ash above obtained, was boiled for 5 min with 25 ml of 1m Hydrochloric acid and filtered using an ash less filter paper. Insoluble matter retained on filter paper was washed with hot water and filter paper was burnt to a constant weight in a muffler furnace. The percentage of acid insoluble as was calculated with reference to the air dried drug.

4. Determination of water soluble ash

Total ash 1g was boiled for 5 min with 25 ml water and insoluble matter collected on an ash filter paper was washed with hot water and ignited for 15 min at a temperature not exceeding 450^0C in a muffle furnace. Difference in weight of ash and weight of water.

5. Determination of water soluble extractive

1 gm of air dried drug, coarsely powered Mallikai choornam was macerated with 100 ml distilled water in a closed flask for twenty-four shaking frequently. Solution was filtered and 25 ml of filtrated was evaporated in a tarred flat bottom shallow dish ,further dried at 100^0C and weighted .The percentage of water soluble extractive was calculated with reference to the air dried drug.

6. Determination of alcohol soluble extractive

1 gm of air dried drug, coarsely powdered Mallikai chooranam was macerated with 100 ml alcohol in alcohol in closed flask for 24 hours with frequent shaking. It was filtered rapidly taking precaution against loss of alcohol 25 ml of filtrate was then evaporated in a tarred flat bottom shallow dish, dried at 100^0C and weighted. The percentage of alcohol soluble extractive was calculated with reference to air dried drug.

S.No	Parameters	Percentage
1.	Moisture content	8.26%
2.	Total Ash value	5.8%
3.	Acid insoluble ash	0.3%
4.	Water Soluble Ash	2.15%
5.	Water soluble extraction	17.6%
6.	Alcohol soluble extraction	25.4%

Anti- Microbial Profiling of Siddha Formulation Malligai Choornama

Project Id: NRS/AS/0033/02/2017

Sample ID: **MC**

Institute: National Institute of Siddha, Chennai.

Purpose: Struvite Crystal growth inhibition Assay

Sample Description: Siddha Formulation

Project Report

Disc-diffusion method:

The antibacterial activities of the sample MC were carried out by disc diffusion method. The concentrations of the test compounds were used at the concentration of 100, 200, 300 µg. The target microorganisms were cultured in Mueller–Hinton broth (MHB). After 24 h the suspensions were adjusted to standard sub culture dilution. The Petri dishes containing Muller Hinton Agar (MHA) medium were cultured with diluted bacterial strain. Disc made of Whatman No.1, diameter 6 mm was pre-sterilized and was maintained in aseptic chamber. Each concentration was injected to the sterile disc papers. Then the prepared discs were placed on the culture medium. Standard drug Ciprofloxacin (10µg) for anti-bacterial and Fluconazole (25µg) was used as a positive reference standard to determine the sensitivity of each microbial species tested. Then the inoculated plates were incubated at 37^{o} C for 24 h (Bacterial) - 72 hr (Fungal). The diameter of the clear zone around the disc was measured and expressed in millimeters as its anti-microbial property. The results were depicted in **Table.**

Organisms used for Anti-Bacterial Activity

s.no	organisms	Type
1.	***Staphylococcus aureus***	***Gram-positive***
2.	***Proteus vulgaris***	***Gram-positive***
3.	***Escherichia coli***	***Gram-negative***
4.	***Klebsiella pneumonia***	***Gram-negative***

Organisms used for Anti-Fungal Activity

s.no	organisms
1.	***Candida albicans***

Zone of Inhibition data of Anti-Microbial Activity

Sample code	***Proteus vulgaris***			***Staphylococcus aureus***			***Escherichia coli***			***Klebsiella pneumoniae***			***Candida albicans***		
Concentration	**100 µg**	**200 µg**	**300 µg**	**100 µg**	**200 µg**	**300 µg**	**100 µg**	**200 µg**	**300 µg**	**100 µg**	**200 µg**	**300 µg**	**100 µg**	**200 µg**	**300 µg**
MC	-	-	-	-	-	14	-	9	15	-	-	-	-	-	-
Ciprofloxacin (10µg)	**18**			**22**			**23**			**16**			**-**		
Fluconazole (25µg)	**NA**			**NA**			**NA**			**NA**			**21**		

- = Not active

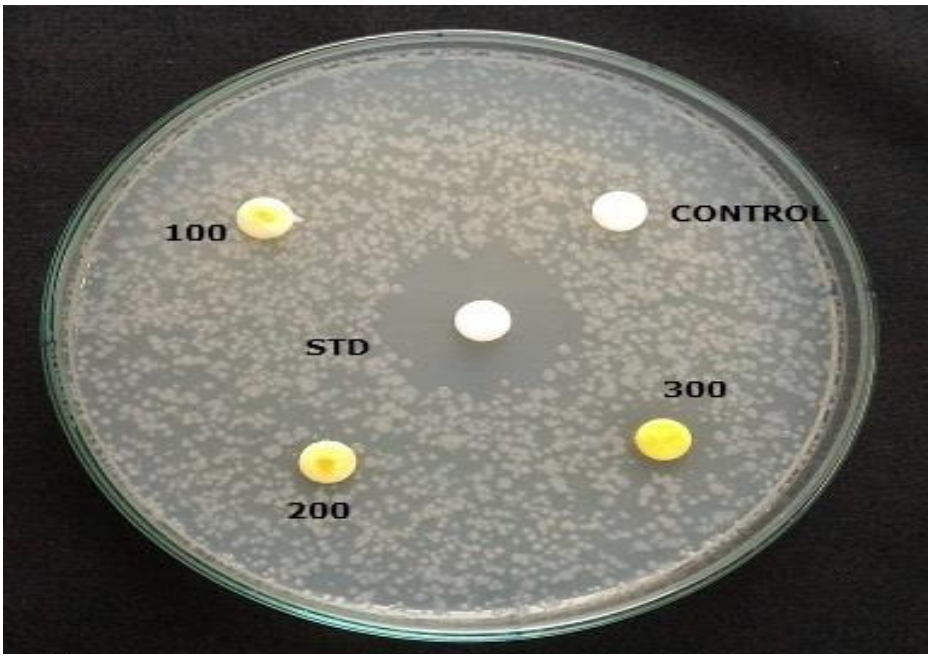
NA = Not Applicable

Conclusion

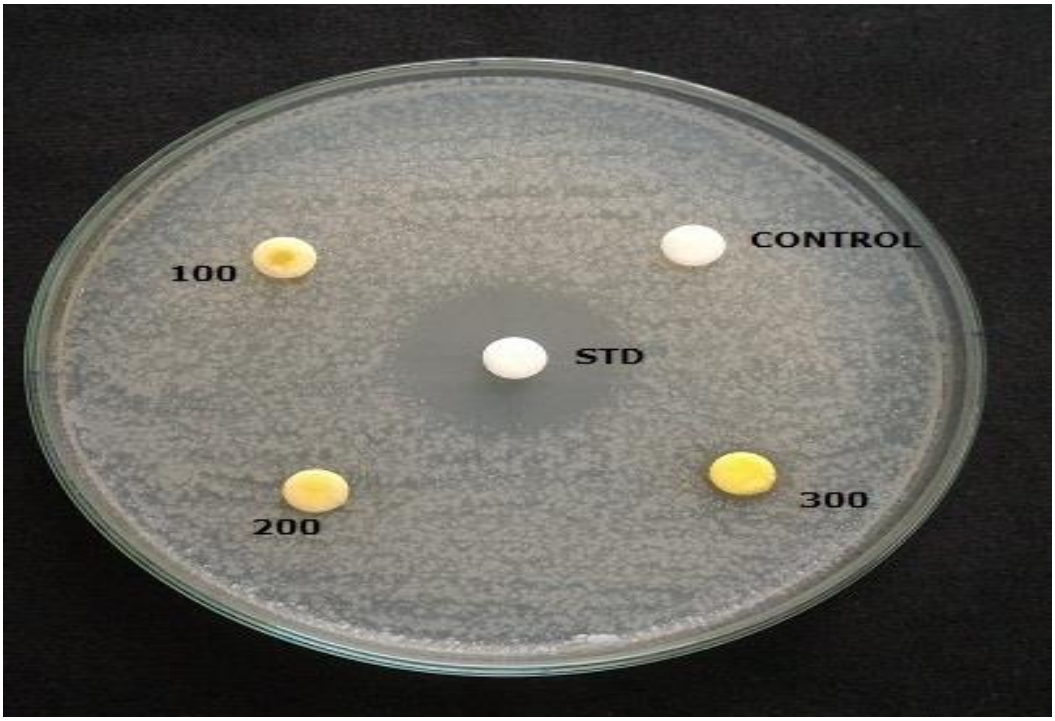
From the results of the present study it was concluded that the sample MC was effective against ***Escherichia coli, Staphylococcus aureus*** *and not active against* ***Klebsiella pneumonia, Proteus vulgaris and Candida albicans.***

Anti-Bacterial Evaluation of MC

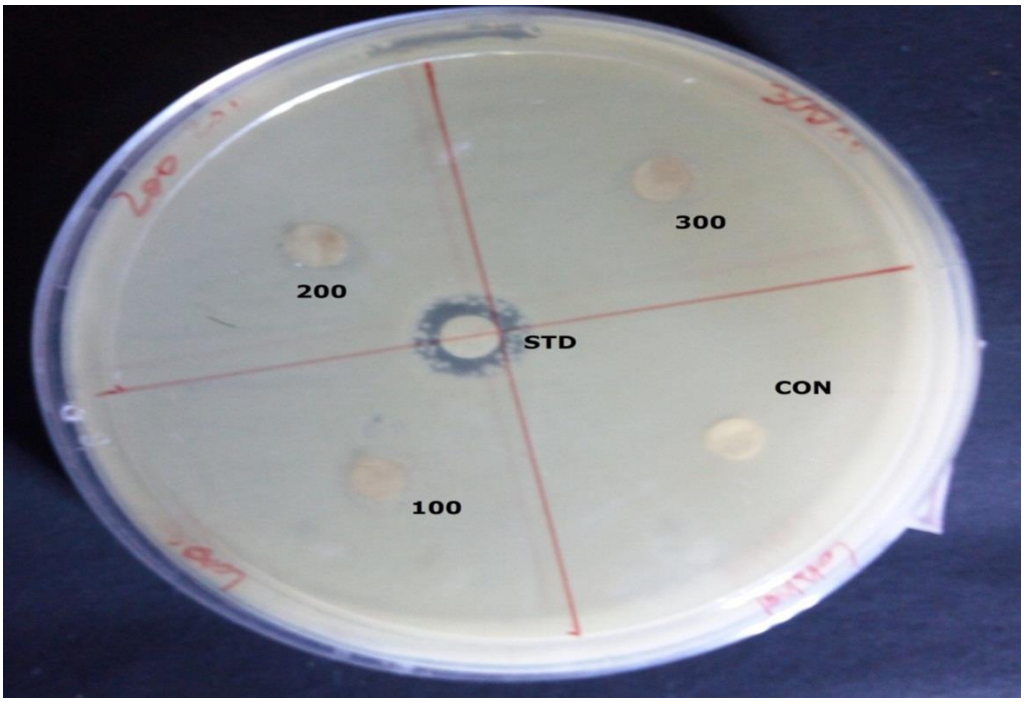
Anti- Microbial Effect of MC against ***Escherichia coli***



Anti- Microbial Effect of MC against ***Staphylococcus aureus***

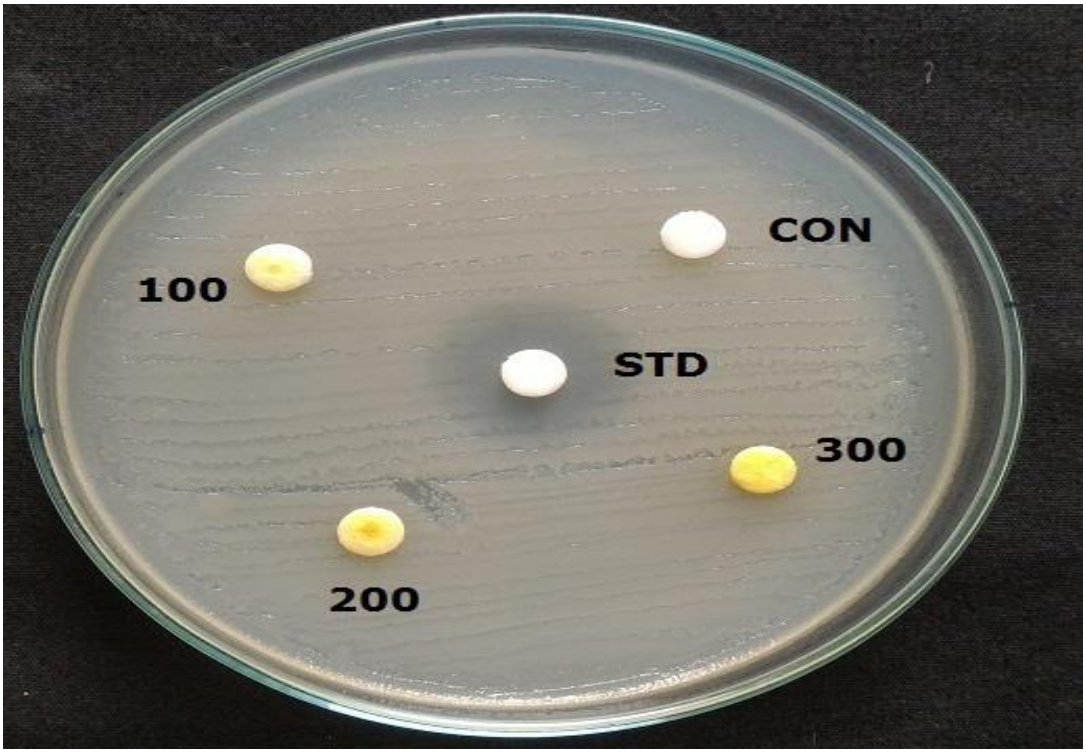


Anti- Microbial Effect of MC- A against ***Proteus vulgaris***



ANTI-FUNGAL EVALUATION

Anti- Microbial Effect of MC against ***Candida albicans***



Detection of Anti-urolithiasis activity using Struvite Crystal growth inhibition Assay

Project Id: NRS/AS/0033/02/2017

Sample ID: **MC**

Institute: National Institute of Siddha, Chennai.

Purpose: Struvite Crystal growth inhibition Assay

Sample Description: Siddha Formulation

Project Report

Objective

The single diffusion gel growth technique was adopted to evaluate anti-urolithiatic potential of the study drug *Malligai Choornam*

Test Drug concentration

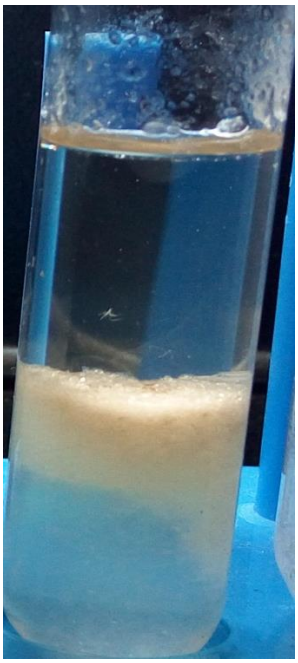
Test drug was prepared at two different concentration of 0.5 and 1 % dispersed in 1.0 M magnesium acetate solution

Methodology

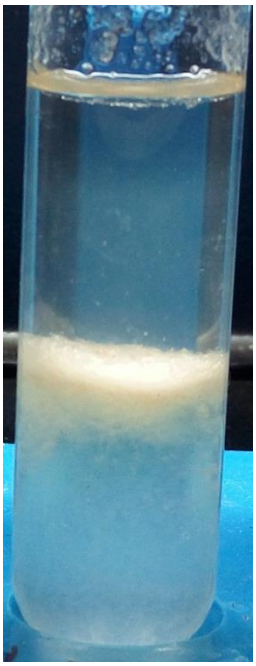
An aqueous solution of 0.5M Ammonium dihydrogen phosphate was admixed with the sodium metasilicate solution of specific gravity 1.05 in appropriate amount using magnetic stirrer so that the pH value 7.0 .pH of the reaction was ensured by using pH probe meter. The gel solution of 10 mL was transferred into the test tubes of 140 mm length and 25 mm diameter. After the gelation took place, 5 mL of supernatant solutions of 0.5 and 1% conc of test drug in 1.0 M magnesium acetate were gently poured on the set gels in test tubes to enumerate the growth inhibition of Struvite crystals. About 5 ml of 1.0 M magnesium acetate without test drug were added as supernatant to control tubes which serves as crystal control group. All the procedures was done in the aseptic medium in laminar flow hood to avoid microbial contaminations. All test tubes and other glassware were autoclaved at 120°C for 15 min. After pouring supernatant solution, the test tubes were capped with airtight stopples. The experiment was con ducted at the room temperature. Study on growth of crystal were carried out for five consecutive days.

Growth Pattern of crystal in control and drug added medium

Growth of Struvite crystals in control Gel medium

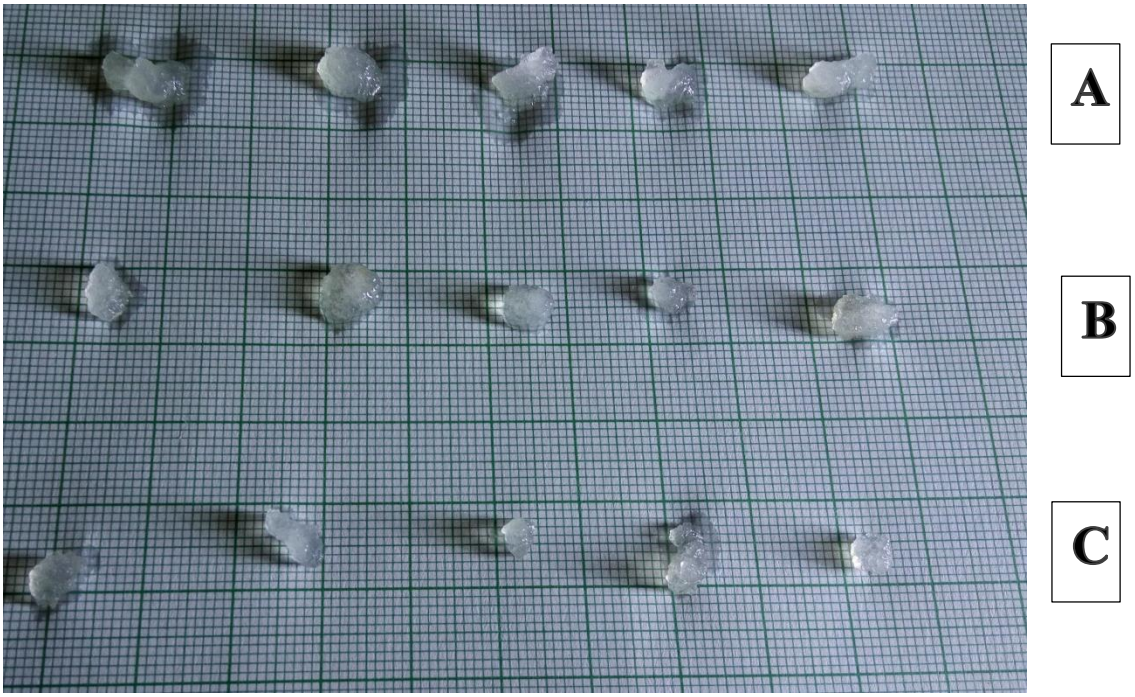


Growth of Struvite crystals in Gel medium with 0.5 of *Malligai Choornam*



Growth of Struvite crystals in Gel medium with 1% of *Malligai Choornam*

Size variation of Struvite crystals



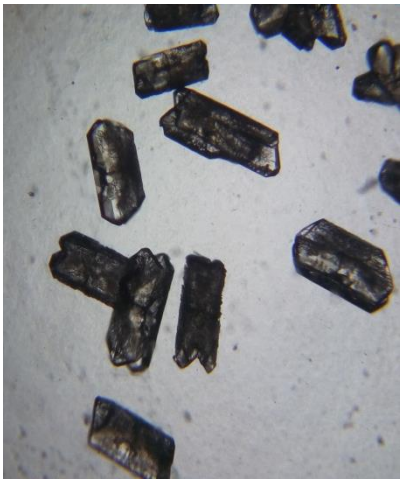
A - Size variation of Struvite crystals in Control Gel medium

B- Size variation of Struvite crystals in Gel medium with 0.5 % of *Malligai Choornam*

C- Size variation of Struvite crystals in Gel medium with 1 % of *Malligai Choornam*

Microscopic view of Struvite crystals size after fragmentation.

Control Gel medium



Gel medium with 0.5 % of *Malligai Choornam*

Gel medium with 1 % of *Malligai Choornam*

Report on Average Length of the Crystal in different medium

S.No	Medium	Average Length of the Crystals in cm
1	**Control Gel medium**	
	Mean	**1.14**
	Std. Deviation	0.1517
	Std. Error	0.06782
2	**Gel medium + 0.5 % MC**	
	Mean	**0.66**
	Std. Deviation	0.1673
	Std. Error	0.07483
3	**Gel medium +1% MC**	
	Mean	**0.46**
	Std. Deviation	0.1342
	Std. Error	0.06

Observation

Control Medium

Average size of the crystal was higher in the control medium with the Avg length of 1.14 cm

Gel medium + 0.5 % MC

Average size of the crystal was significantly decreased in medium contains 0.5% of test drug MC with the Avg length of 0.66 cm

Gel medium +1% MC

Average size of the crystal was much reduced in medium contains 1 % of test drug MC with the Avg length of 0.46 cm

Conclusion

From the result of the study it was concluded that the test drug MC has anti-urolithiasis activity in the tested medium.

Reference

Chauhan, C.K., K.C. Joseph, B.B. Parekh and M.J. Joshi, 2008. Growth and characterization of Struvite crystals, Ind. J. Pure Appl. Phys., 46: 507-512.

INVESTIGATIONS

BLOOD INVESTIGATION BEFORE AND AFTER TREATMENT

S.NO	OPD NO.	AGE /SEX	Hb gm%		T.RBC mill/µl		TC cells / µl	
			BT	AT	BT	AT	BT	AT
1	J04255	31/F	11.2	11.7	4.1	4.3	9600	9700
2	H86207	37/F	11.3	11.5	3.8	4	8200	8100
3	J01022	36/F	10.6	12.8	3.4	4.4	7000	5900
4	I70491	45/M	6.8	7.3	4.4	4.8	8200	6900
5	H02278	31/F	11.9	12	4.5	5.1	9500	8700
6	J09324	43/F	8.6	10	4.2	5.1	6500	7000
7	I63314	40/F	13.5	13.5	4.3	4.6	6900	5500
8	J07352	47/F	10.4	10.4	4.8	4.3	8500	4400
9	J11800	41/F	11.4	11.5	4.3	4.1	8000	9190
10	J08673	22/F	11.9	12.4	4.5	4.6	8800	7500
11	I87174	40/F	11.9	11.3	4.5	4.3	8100	7900
12	J16842	31/M	16.9	15.7	5.3	5.1	7100	5100
13	J22865	52/F	12.8	12	4.7	4.3	9000	7000
14	J16540	34/F	8.9	9.1	4.5	4.7	6500	8400
15	G87332	29/F	13	12.9	4.5	4.1	8000	7500
16	J08665	52/F	14.2	13.1	4.9	4.7	8700	9200
17	J39132	55/F	11.7	11.2	4.5	4	8500	7100
18	H30798	43/F	10.4	11	4.4	4.5	7000	6800
19	J55501	42/F	13.2	13	4.4	4.1	7500	7000
20	J45744	55/F	11.1	12	4.2	4.4	4800	3900
21	H99304	23/F	12.2	12.1	4.4	5.1	8600	6300
22	J35640	54/M	13.4	14	4.8	5.5	8700	8000
23	J78302	34/F	14.1	12.3	4.7	4.3	5800	4700
24	J94334	40/F	12.7	12.5	3.9	3.8	8700	8900
25	J09153	32/F	12.2	12.5	4.8	5	9200	7200
26	K09235	42/F	12.6	12.4	4.5	4.1	5600	4500
27	K05211	43/F	10.9	10.6	4.9	4.8	7000	6000
28	K15624	42/M	14.3	14.4	4.8	4.9	5800	4700
29	H06297	55/F	13	13.2	4.4	4.5	5300	6200
30	H53004	36/F	11	11.3	4.8	5	9500	9200

BLOOD INVESTIGATION BEFORE TREATMENT

S.NO	OPDNO.	AGE/SEX	DC%-P	DC%L	DC%M	DC%-E	DC%-B	ESR ½/1 Hr
1	J04255	31/F	63	32	5	0	0	14/30
2	H86207	37/F	59	37	4	0	0	10/20
3	J01022	36/F	63	31	5	0	0	20/40
4	I70491	45/M	60	32	8	0	0	20/42
5	H02278	31/F	64	33	3	0	0	20/40
6	J09324	43/F	63	31	6	0	0	30/60
7	I63314	40/F	68	27	5	0	0	40/82
8	J07352	47/F	68	32	5	0	0	30/60
9	J11800	41/F	59.5	33.2	5.4	1.7	0	20/31
10	J08673	22/F	52	45	5	0	0	34/70
11	I87174	40/F	50	43	7	0	0	4/8
12	J16842	31/M	63	34	3	0	0	2/6
13	J22865	52/F	52	43	5	0	0	16/32
14	J16540	34/F	57	40	3	0	0	24/50
15	G87332	29/F	62	32	6	0	0	10/32
16	J08665	52/F	65	33	2	0	0	18/20
17	J39132	55/F	65	32	0	3	0	6/12
18	H30798	43/F	64	34	0	2	0	10/22
19	J55501	42/F	71	24	5	0	0	16/34
20	J45744	55/F	53	43	4	0	0	10/20
21	H99304	23/F	60.5	34.6	0	5.1	0	5/10
22	J35640	54/M	63	41	5	0	0	20/40
23	J78302	34/F	61	37	0	2	0	6/10
24	J94334	40/F	59	38	1	2	0	4/8
25	J09153	32/F	64	33	0	3	0	4/12
26	K09235	42/F	65	32	0	3	0	30/60
27	K05211	43/F	70	27	0	3	0	4/8
28	K15624	42/M	57	37	1	5	0	4/6
29	H06297	55/F	68	27	2	3	0	20/40
30	H53004	36/F	62	37	0	1	0	18/20

BLOOD INVESTIGATION AFTER TREATMENT

S.NO	OPDNO.	AGE/SEX	DC %-P	DC%-L	DC%-M	DC%-E	DC%-B	ESR ½/1 Hr
1	J04255	31/F	59	33	3	0	0	12/18
2	H86207	37/F	59	36	5	0	0	50/100
3	J01022	36/F	65	31	4	0	0	6/12
4	I70491	45/M	60	32	8	0	0	16/32
5	H02278	31/F	66	31	5	0	0	12/18
6	J09324	43/F	58	34	4	0	0	12/17
7	I63314	40/F	69	32	4	0	0	20/18
8	J07352	47/F	77	19	4	0	0	44/90
9	J11800	41/F	61.3	22.2	3	1.7	0	14/16
10	J08673	22/F	58	38	4	0	0	12/24
11	I87174	40/F	62	51	5	0	0	4/8
12	J16842	31/M	62	41	5	0	0	8/12
13	J22865	52/F	62	41	4	0	0	12/14
14	J16540	34/F	62	42	2	0	0	13/18
15	G87332	29/F	60	35	5	0	0	16/32
16	J08665	52/F	64	41	5	0	0	16/20
17	J39132	55/F	66	32	0	2	0	7/14
18	H30798	43/F	68	35	0	3	0	11/16
19	J55501	42/F	68	31	4	0	0	12/16
20	J45744	55/F	68	30	0	2	0	6/12
21	H99304	23/F	61	35	0	1	0	6/12
22	J35640	54/M	65	45	3	0	0	4/8
23	J78302	34/F	65	41	0	1	0	4/8
24	J94334	40/F	56	41	0	3	0	7/14
25	J09153	32/F	55	42	0	3	0	6/12
26	K09235	42/F	61	31	0	1	0	10/20
27	K05211	43/F	65	31	0	4	0	7/14
28	K15624	42/M	63	39	1	1	0	16/20
29	H06297	55/F	66	28	2	4	0	16/18
30	H53004	36/F	61	37	0	1	0	6/12

BLOOD INVESTIGATION BEFORE TREATMENT

S.NO	OPDNO.	AGE/SEX	FBS mg/dl	PPBS mg/dl	UREA mg/dl	S.Cr mg/dl	S.UA mg/dl	VDRL
1	J04255	31/F	88	107	24	0.8	4.5	NR
2	H86207	37/F	104	133	12	0.8	4.1	NR
3	J01022	36/F	79	124	24	0.8	5.4	NR
4	I70491	45/M	88	124	14	1	4.7	NR
5	H02278	31/F	109	123	11	0.9	3.4	NR
6	J09324	43/F	87	121	13	0.9	4.7	NR
7	I63314	40/F	88	121	20	0.7	5.5	NR
8	J07352	47/F	97	120	35	0.8	3.5	NR
9	J11800	41/F	108	124	33	0.9	2.6	NR
10	J08673	22/F	89	124	12	0.7	5.5	NR
11	I87174	40/F	94	117	20	0.9	3.4	NR
12	J16842	31/M	89	124	15	1.1	5.1	NR
13	J22865	52/F	94	108	26	0.8	5.5	NR
14	J16540	34/F	88	122	21	0.8	5.5	NR
15	G87332	29/F	93	134	17	0.7	4.2	NR
16	J08665	52/F	94	104	12	0.9	4.7	NR
17	J39132	55/F	104	133	16	1.1	5.2	NR
18	H30798	43/F	91	104	33	0.8	4.1	NR
19	J55501	42/F	91	89	13	0.8	2.8	NR
20	J45744	55/F	92	109	17	1	5.1	NR
21	H99304	23/F	97	102	5	0.8	3	NR
22	J35640	54/M	88	124	17.14	0.7	5.2	NR
23	J78302	34/F	93	103	10	0.7	3.5	NR
24	J94334	40/F	87	120	10	0.9	3.4	NR
25	J09153	32/F	93	122	10	0.9	4.9	NR
26	K09235	42/F	95	124	14	0.9	5.7	NR
27	K05211	43/F	101	131	15	0.9	3.9	NR
28	K15624	42/M	91	124	15	1.2	4.1	NR
29	H06297	55/F	93	132	24	0.9	7.1	NR
30	H53004	36/F	87.5	116.8	31	0.9	2.7	NR

BLOOD INVESTIGATION AFTER TREATMENT

S.NO	OPDNO.	AGE/SEX	FBS mg/dl	PPBS mg/dl	UREA mg/dl	S.Cr mg/dl	S.UA mg/dl	VDRL
1	J04255	31/F	94	123	17	0.9	5.1	NR
2	H86207	37/F	95	121	11	0.9	4.5	NR
3	J01022	36/F	88	100	17	0.7	4.1	NR
4	I70491	45/M	104	133	12	0.9	5.8	NR
5	H02278	31/F	95	131	12	1.1	4.1	NR
6	J09324	43/F	95	131	11	0.9	6.7	NR
7	I63314	40/F	104	124	18	0.9	6.3	NR
8	J07352	47/F	98	121	7	0.7	4.1	NR
9	J11800	41/F	98	123	34	1	3.1	NR
10	J08673	22/F	94	129	11	0.9	5.3	NR
11	I87174	40/F	98	124	22	0.8	5.2	NR
12	J16842	31/M	107	131	19	1.2	5.4	NR
13	J22865	52/F	101	120	31	0.9	5.4	NR
14	J16540	34/F	97	128	31	0.9	5.1	NR
15	G87332	29/F	79	113	20	0.9	4.8	NR
16	J08665	52/F	97	117	33	0.8	4.9	NR
17	J39132	55/F	109	122	17	1	4.8	NR
18	H30798	43/F	94	121	41	0.9	5.3	NR
19	J55501	42/F	98	102	25	0.8	4.1	NR
20	J45744	55/F	99	109	25	1.1	4.9	NR
21	H99304	23/F	102	131	21	0.9	4.4	NR
22	J35640	54/M	94	121	32	0.9	7.1	NR
23	J78302	34/F	103	121	17	1.1	2.7	NR
24	J94334	40/F	115	122	14	0.9	3.2	NR
25	J09153	32/F	97	124	12	1	4.1	NR
26	K09235	42/F	96	122	17	0.9	6.1	NR
27	K05211	43/F	107	110	17	0.9	4.3	NR
28	K15624	42/M	97	125	19	0.9	3.4	NR
29	H06297	55/F	109	129	20	1.1	6.6	NR
30	H53004	36/F	103	126	25	1	2.7	NR

BLOOD INVESTIGATION BEFORE TREATMENT

S.NO	OPDNO.	AGE/SEX	T.CHL mg/dl	HDL mg/dl	LDL mg/dl	VLDL mg/dl	TGL mg/dl	T.BIL mg/dl	D.BIL mg/dl
1	J04255	31/F	208	73	124	29	143	0.8	1.2
2	H86207	37/F	177	48	107	59	295	0.8	1.1
3	J01022	36/F	172	42	44	22	112	0.8	1.2
4	I70491	45/M	109	47	59	9	45	1.1	0.8
5	H02278	31/F	127	56	76	21	104	1.1	0.9
6	J09324	43/F	146	51	94	22	110	1.1	0.8
7	I63314	40/F	220	64	146	38	193	0.8	1.2
8	J07352	47/F	213	166	132	34	154	1.1	1.2
9	J11800	41/F	207	48	102	17	103	0.5	0.1
10	J08673	22/F	135	44	84	15	74	0.8	1.2
11	I87174	40/F	131	41	76	31	157	1.1	0.8
12	J16842	31/M	137	31	90	16	32	0.9	0.8
13	J22865	52/F	151	53	81	21	104	1.1	0.8
14	J16540	34/F	121	42	101	32	152	0.5	0.7
15	G87332	29/F	142	46	79	26	129	1.4	0.6
16	J08665	52/F	178	54	103	27	134	0.9	1.1
17	J39132	55/F	185	43	111	47	236	0.2	0.1
18	H30798	43/F	213	63	126	16	79	0.9	1.1
19	J55501	42/F	172	53	98	13	65	0.5	0.2
20	J45744	55/F	199	59	114	21	104	0.3	0.4
21	H99304	23/F	108	40	70	32	160	0.2	0.1
22	J35640	54/M	186	56	96	17	86	0.6	0.3
23	J78302	34/F	169	52	90	19	97	0.6	0.2
24	J94334	40/F	198	56	129	37	186	0.9	0.4
25	J09153	32/F	144	51	77	11	57	0.4	0.2
26	K09235	42/F	215	47	123	34	173	0.5	0.2
27	K05211	43/F	178	37	106	30	149	0.5	0.2
28	K15624	42/M	218	51	131	34	169	0.7	0.3
29	H06297	55/F	163	53	94	20	88	0.9	0.4
30	H53004	36/F	171	51	92	24	101	0.7	0.4

BLOOD INVESTIGATION BEFORE TREATMENT

ID.BIL mg/dl	T.PRO mg/dl	S.ALB mg/dl	S.GLB mg/dl	S.Cal mg/dl	S.PHO mg/dl	SGOT IU/L	SGPT IU/L	ALK.PH
0.3	6.7	4.1	2.5	9.2	3.4	12	14	119
0.4	7.1	4.1	3.1	9.2	4.1	32	14	94
0.4	7.1	4.1	2.4	10.1	4.1	14	18	123
0.6	7.4	4.1	2.5	9.8	3.4	14	18	81
0.4	6.1	4.1	2.4	9.2	4.4	14	18	94
0.6	6.4	4.7	2.8	9.2	4.3	18	12	99
0.6	7.4	4.7	3.4	9.3	4.1	18	14	144
0.8	7.9	3.8	2.9	10.2	3.8	12	14	149
0.4	8	3.9	2.4	8.6	3.8	43	40	147
0.3	6.8	3.6	2.7	9.3	4.1	14	18	179
0.3	6.4	4.4	2.8	9.3	4.4	14	18	184
0.3	6.4	3.7	2.8	9.4	4	18	20	177
0.4	8.1	4.8	2.4	9.2	4.4	14	18	182
0.7	7.7	3.7	2.7	9.3	4.4	16	10	60
0.9	7.7	4.8	2.8	7.7	4.3	20	19	79
0.6	6.9	3.8	2.9	9.3	4.7	18	17	141
0.1	7.5	4.5	3.1	10.2	4.1	15	15	177
0.8	6.8	4.4	2.8	9.3	4.4	18	19	144
0.3	6.8	3.9	2.8	9.3	3.9	17	10	67
0.8	7.1	4.1	2.5	9.3	4.4	2	8	94
0.1	6.9	3.9	3	8.2	4.4	10	18	92
0.3	6.9	3.8	3	9.5	3.8	16	7	105
0.4	6.3	3.2	3.1	8.2	4.4	21	27	72
0.4	7.2	3.9	3.3	8.4	4.1	18	20	79
0.3	7.5	3.9	3.6	10.8	3.8	18	15	94
0.3	8.3	3.8	4.5	8.6	4.1	14	15	104
0.3	7.4	3.7	3.7	8	4.1	16	18	132
0.4	6.6	3.9	2.6	8	3.8	24	31	58
0.6	7.8	4.4	3.8	8.4	4.2	20	18	177
0.4	7.4	4.4	3.1	7.4	3.8	24	30	181

BLOOD INVESTIGATION AFTER TREATMENT

S. NO	OPD NO.	AGE/ SEX	T.CHL mg/dl	HDL mg/dl	LDL mg/dl	VLDL mg/dl	TGL mg/dl	T.BIL mg/dl	D.BIL mg/dl
1	J04255	31/F	211	69	98	33	121	0.9	1.4
2	H86207	37/F	212	54	124	60	299	0.7	1.2
3	J01022	36/F	163	62	90	18	90	0.9	1.1
4	I70491	45/M	125	52	63	12	61	0.7	0.4
5	H02278	31/F	144	61	81	32	130	0.9	1.1
6	J09324	43/F	131	53	112	25	110	0.9	0.8
7	I63314	40/F	167	42	122	36	151	0.9	1.2
8	J07352	47/F	186	47	111	31	156	1.1	0.9
9	J11800	41/F	188	51	92	22	132	0.9	0.3
10	J08673	22/F	173	49	107	19	95	1.1	0.8
11	I87174	40/F	122	48	93	31	130	1.1	0.8
12	J16842	31/M	122	30	92	17	41	0.8	1.1
13	J22865	52/F	164	42	92	23	150	0.9	0.8
14	J16540	34/F	152	45	93	33	141	0.8	1.1
15	G87332	29/F	141	43	82	33	167	1.1	0.5
16	J08665	52/F	160	33	97	33	134	0.8	1.1
17	J39132	55/F	178	34	107	49	243	0.3	0.1
18	H30798	43/F	188	51	114	21	121	1.1	1.2
19	J55501	42/F	201	55	101	21	71	0.9	1.1
20	J45744	55/F	238	58	140	28	142	0.9	0.3
21	H99304	23/F	141	53	74	28	141	1.1	1.1
22	J35640	54/M	155	57	101	21	151	1.1	1.2
23	J78302	34/F	180	61	102	21	107	1.2	0.8
24	J94334	40/F	183	53	102	28	143	0.5	0.2
25	J09153	32/F	149	53	78	11	54	0.5	0.2
26	K09235	42/F	168	51	117	36	112	1.1	0.9
27	K05211	43/F	196	42	115	24	123	0.6	0.2
28	K15624	42/M	150	61	121	37	153	1.1	1.2
29	H06297	55/F	158	50	87	14	69	0.8	0.3
30	H53004	36/F	166	45	93	18	92	0.6	0.2

BLOOD INVESTIGATION AFTER TREATMENT

ID.BIL mg/dl	T.PRO mg/dl	S.ALB mg/dl	S.GLB mg/dl	S.Cal mg/dl	S.PHO mg/dl	SGOT IU/L	SGPT IU/L	ALK.PH
0.2	7.1	3.2	3.1	10.1	3.5	17	14	233
0.6	6.8	4.5	3.4	10.1	4.2	12	14	181
0.4	7.2	4.5	2.5	9.8	4.2	22	14	181
0.3	8	3.4	2.7	10.1	3.4	11	8	155
0.6	5.8	4.8	3.1	10.4	3.9	18	14	98
0.6	6.6	3.9	2.9	10.1	3.9	17	14	177
0.6	6.4	4.8	2.4	10.2	4.4	20	18	178
0.8	6.7	4.4	3.4	10.3	4.1	14	18	177
0.6	6.4	4.1	2.7	9.3	4.3	18	21	178
0.6	6.4	4.7	2.9	10.2	4.8	20	18	194
0.3	7.9	4.4	2.9	10.1	4.1	14	17	222
0.6	6.9	3.9	2.9	10.1	4.1	14	17	241
0.4	7.4	3.4	3.4	10.4	4.1	12	10	244
0.4	6.8	3.4	3.4	10.1	3.4	18	13	190
0.6	7.9	4.9	2.7	8.7	3.9	18	20	78
0.7	7.7	3.9	3.1	10.1	4.1	17	20	197
0.2	7.6	3.8	3.8	7.5	4.1	14	13	66
0.4	6.9	3.6	3.1	9.4	3.9	20	17	201
0.5	7.1	4.1	3.1	9.3	4.1	20	18	104
0.6	7.4	4.1	3.3	8.1	3.8	19	10	82
0.6	6.2	4.1	2.7	9.3	4.1	14	17	101
0.5	7.4	3.5	3.1	9.4	4.4	20	18	171
0.6	7.1	3.9	3.4	9.4	4.1	17	21	171
0.3	6.9	3.8	3.1	8.1	3.9	13	10	44
0.3	7.5	4	3.5	8.3	4.1	18	15	100
0.6	7.9	3.4	4.7	9.4	4.1	17	21	172
0.4	8	3.8	4.2	10.1	4.2	13	11	128
0.7	7.1	4.6	3.1	9.4	4.1	14	17	180
0.5	7	4	3	8.3	4.1	19	19	104
0.4	7.1	3.8	3.3	7.1	4.1	10	12	79

URINE INVESTIGATION BEFORE TREATMENT

S. NO	OPD NO.	AGE/ SEX	ALB	SUG	DEP PUS CELLS	DEP EPI CELLS	CAST CELLS	BS/BP	URO
1	J04255	31/F	Nil	Nil	4 to 6	2 to 3		Nil	Nil
2	H86207	37/F	Nil	Nil	1 to 2	1 to 2		Nil	Nil
3	J01022	36/F	Nil	Nil	6 to 8	2 to 4		Nil	Nil
4	I70491	45/M	Nil	Nil	1 to 3	1 to 2		Nil	Nil
5	H02278	31/F	Trace	Nil	2 to 4	2 to 4		Nil	Nil
6	J09324	43/F	Nil	Nil	3 to 6	3 to 4		Nil	Nil
7	I63314	40/F	Nil	Nil	3 to 5	1 to 2		Nil	Nil
8	J07352	47/F	Nil	Nil	2 to 3	3 to 4	4 to 5 RBC	Nil	Nil
9	J11800	41/F	Nil	Nil	3 to 6	2 to 4	1 to 4 RBC	Nil	Nil
10	J08673	22/F	Nil	Nil	2 to 3	4 to 6		Nil	Nil
11	I87174	40/F	Nil	Nil	8 to 9	4 to 6		Nil	Nil
12	J16842	31/M	Nil	Nil	2 to 3	1 to 2		Nil	Nil
13	J22865	52/F	Nil	Nil	3 to 5	2 to 4		Nil	Nil
14	J16540	34/F	Nil	Nil	3 to 5	1 to 2		Nil	Nil
15	G87332	29/F	Trace	Nil	plenty	2 to 4		Nil	Nil
16	J08665	52/F	Nil	Nil	8 to 10	1 to 2		Nil	Nil
17	J39132	55/F	Nil	Nil	1 to 2	1 to 2		Nil	Nil
18	H30798	43/F	Nil	Nil	4 to 6	4 to 6		Nil	Nil
19	J55501	42/F	Nil	Nil	2 to 4	2 to 4		Nil	Nil
20	J45744	55/F	Nil	Nil	1 to 2	1 to 2		Nil	Nil
21	H99304	23/F	Nil	Nil	2 to 3	5 to 6		Nil	Nil
22	J35640	54/M	Trace	Nil	---	---	RBC+++, WBC+++	Nil	Nil
23	J78302	34/F	Nil	Nil	3 to 5	2 to 4		Nil	Nil
24	J94334	40/F	Nil	Nil	3 to 5	1 to 2		Nil	Nil
25	J09153	32/F	Nil	Nil	6 to 8	1 to 4		Nil	Nil
26	K09235	42/F	Nil	Nil	8 to 10	1 to 4		Nil	Nil
27	K05211	43/F	Nil	Nil	3 to 5	1 to 2		Nil	Nil
28	K15624	42/M	Nil	Nil	1 to 2	3 to 4		Nil	Nil
29	H06297	55/F	Nil	Nil	loaded	4 to 6		Nil	Nil
30	H53004	36/F	Nil	Nil	1 to 3	1 to 3		Nil	Nil

URINE INVESTIGATION AFTER TREATMENT

S.NO	OPDNO.	AGE/SEX	ALB	SUG	DEP PUS CELLS	DEP EPI CELLS	BS	BP	URO
1	J04255	31/F	Nil	Nil	1 to 2	1 to 3	Nil	Nil	Nil
2	H86207	37/F	Nil	Nil	2 to 4	2 to 4	Nil	Nil	Nil
3	J01022	36/F	Nil	Nil	3 to 5	1 to 2	Nil	Nil	Nil
4	I70491	45/M	Nil	Nil	2 to 3	1 to 2	Nil	Nil	Nil
5	H02278	31/F	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
6	J09324	43/F	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
7	I63314	40/F	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
8	J07352	47/F	Nil	Nil	2 to 4	2 to 4	Nil	Nil	Nil
9	J11800	41/F	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
10	J08673	22/F	Nil	Nil	plenty	3 to 5	Nil	Nil	Nil
11	I87174	40/F	Nil	Nil	1 to 2	2 to 4	Nil	Nil	Nil
12	J16842	31/M	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
13	J22865	52/F	Nil	Nil	1 to 2	4 to 5	Nil	Nil	Nil
14	J16540	34/F	Nil	Nil	1 to 2	2 to 4	Nil	Nil	Nil
15	G87332	29/F	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
16	J08665	52/F	Nil	Nil	2 to 4	3 to 4	Nil	Nil	Nil
17	J39132	55/F	Nil	Nil	4 to 5	1 to 2	Nil	Nil	Nil
18	H30798	43/F	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
19	J55501	42/F	Nil	Nil	2 to 3	1 to 2	Nil	Nil	Nil
20	J45744	55/F	Nil	Nil	2 to 4	2 to 4	Nil	Nil	Nil
21	H99304	23/F	Nil	Nil	1 to 2	1 to 3	Nil	Nil	Nil
22	J35640	54/M	Nil	Nil	1 to 5	5 to 7	Nil	Nil	Nil
23	J78302	34/F	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
24	J94334	40/F	Nil	Nil	1 to 2	1 to 2	Nil	Nil	Nil
25	J09153	32/F	Nil	Nil	1 to 3	1 to 3	Nil	Nil	Nil
26	K09235	42/F	Nil	Nil	1 to 3	3 to 4	Nil	Nil	Nil
27	K05211	43/F	Nil	Nil	1 to 3	1 to 2	Nil	Nil	Nil
28	K15624	42/M	Nil	Nil	1 to 2	3 to 5	Nil	Nil	Nil
29	H06297	55/F	Nil	Nil	4 to 6	1 to 2	Nil	Nil	Nil
30	H53004	36/F	Nil	Nil	2 to 4		Nil	Nil	Nil

URINE CULTURE BEFORE AND AFTER TREATMENT

S.NO	OPD NO	AGE/ SEX	BEFORE /AFTER TREATMENT	ORGANISM	COLONY COUNT(cfu/ml)
1	J04255	35/F	BT	Escherichia coli	50,000
			AT	No organism grown	
2	H86207	37/F	BT	Klebsiella spp.	1,00,000
			AT	Klebsiella spp.	80,000
3	J01022	36/F	BT	Escherichia coli	More than 100,000
			AT	No organism grown	
4	I70491	45/M	BT	Escherichia coli	80,000
			AT	No organism grown	
5	H02278	31/F	BT	Escherichia coli	1,30,000
			AT	No organism grown	
6	J09324	43/F	BT	Escherichia coli	More than 1,00,000
			AT	No organism grown	
7	I63314	40/F	BT	Escherichia coli	1,00,000
			AT	No organism grown	
8	J07352	47/F	BT	Klebsiella spp.	More than 2 lakh
			AT	Klebsiella spp.	More than 1 lakh
9	J11800	41/F	BT	Escherichia coli	1,50,000
			AT	No organism grown	
10	J08673	22/F	BT	Escherichia coli	50,000
			AT	No organism grown	
11	I87174	40/F	BT	Escherichia coli	80,000
			AT	No organism grown	
12	J16842	31/M	BT	Enterococcus spp.	50,000
			AT	No organism grown	
13	J22865	52/F	BT	Proteus vulgaris	1,00,000
			AT	Citrobactar koseri	1000
14	J16540	34/F	BT	Escherichia coli	More than 1 lakh
			AT	Escherichia coli	10,000
15	G87332	29/F	BT	Escherichia coli	30,000
			AT	No organism grown	
16	J08665	52/F	BT	Escherichia coli	1,20,000
			AT	Escherichia coli	30,000
17	J39132	55/F	BT	Escherichia coli	1,00,000
			AT	No organism grown	
18	H30798	43/F	BT	Escherichia coli	More than 50,000
			AT	No organism grown	

19	J55501	42/F	BT	Escherichia coli	More than 1 lakh
			AT	No organism grown	
20	J45744	55/F	BT	Staphylococcus epidermis	1,00,000
			AT	Escherichia coli	60,000
21	H99304	23/F	BT	Enterococcus spp.	60,000
			AT	No organism grown	
22	J35640	54/M	BT	Staphylococcus aureus	1,00,000
			AT	Staphylococcus aureus	60,000
23	J78302	34/F	BT	Escherichia coli	50,000
			AT	No organism grown	
24	J94334	40/F	BT	Escherichia coli	1,80,000
			AT	No organism grown	
25	J09153	32/F	BT	Escherichia coli	1,00,000
			AT	No organism grown	
26	K09235	42/F	BT	Klebsiella spp.	1,00,000
			AT	Pseudomonas spp	1000
27	K05211	43/F	BT	Escherichia coli	80,000
			AT	No organism grown	
28	K15624	42/M	BT	Escherichia coli	40,000
			AT	No organism grown	
29	H06297	55/F	BT	Escherichia coli	More than 1 lakh
			AT	No organism grown	
30	H53004	36/F	BT	Escherichia coli	80,000
			AT	No organism grown	

DISCUSSION

DISCUSSION

Azhal neer churukku is one of the most common bacterial infection, particularly in females 20 -30% of women have recurrent infection at sometimes in their life. In men it is less common and primarily occur after 50 years of age. The signs and symptoms of azhal neer churukku are correlated with urinary tract infection in modern medicine.

The study drug was prepared in Gunapadam lab of National Institute of Siddha after the authentication of herbal raw drugs by botanist of NIS. The drug was prepared by standard operating procedure as mentioned in the protocol.

The biochemical (quantitative) analysis of the study drug was done at the biochemistry laboratory of NIS. It revealed the presence of mineral such as sodium, silicate, sulphide, borate, potassium, tannin. Physiochemical and phytochemical analysis were done at Tamilnadu Dr MGR Medical University, Guindy, Chennai.

In vitro study was done at Nobel research solution, Sathyabama University, Chennai. In vitro study revealed that the study drug Mallikai Choornam has anti-microbial activity, it acted well on Escherichia coli.

Pilot study had been conducted for fixing the duration of drug administration. 10 patients were included based on inclusion and exclusion criteria. For 5 days trail drug was given and urine culture was taken. The duration at which urine culture became negative was fixed as a duration of drug administration.

The clinical study was conducted with a well-defined protocol and a proper proforma after getting the approval from the Institutional Ethical Committee (IEC NO: NIS/IEC/11-05/14-10-2016). 30 cases of Azhal neerchurukku were diagnosed based on clinical symptoms and urine culture. All the cases were treated in outpatient department of Ayothidoss pandithar hospital, NIS, Tambaram sanatorium, Chennai-47.

The various Siddha and Modern methods of examinations were carried out in patients and the data were recorded in the proforma. The patient were treated for a period of 15days with Mallikai choornam (Internal) at the dose of 6grams, twice a day after food with hot water as an adjuvant.

Clinical assessment was done during each visit of patient once in 5days and the data were noted in the prescribed proforma. Urine culture were done in 0^{th} day and 15^{th} day of the study for all the enrolled patients. All the patients were put under observation for 1 month to follow up period without the study drug treatment.

OBSERVATION:

Gender distribution:

Among 30 cases 26 females and 4 males are affected.

Inference;

According to anatomy female urethra shorter than male urethra. So urinary infection is common in females.

Kaalam distribution (Age)

Among 30 cases 7cases were found to be in Vatha kaalam (1-33 years) and 23 cases were Pitha kaalam (34-66 years)

Inference:

The peak incidence of urinary tract infection occurred between 35 to 55 years of age (Pitha kaalam 34 -66 years)

Occupational reference:

Home maker accounts for highest number of occurrence ie. 20 cases (66.6%)

Socio economic status:

Among 30 cases, 25 cases (83.3%) were middle class, 3 cases (10%) were poor class and 2case (6.7%) were upper class. So this disease was found mostly in middle class people.

Dietary habit:

Among 30 cases, 25 (83.3%) cases were non vegetarians, 5 (16.7%) were vegetarians. Most of the cases were found in non-vegetarian category. In non-vegetarian people body heat is increased so it may be produce pitha disease.

Paruvakalam:

Among 30 cases 13 cases (43.3%) were affected in Muthuvenil Kaalam (June 15-Aug 17), 8 cases (26.7%) were affected in Pinpani Kalam (Feb13-April 13), 5cases (16.7%) were affected in Munpani kaalam (Dec 17- Feb12) and 4 cases (13.3%) were affected in Ilavenil Kalam (April 14-June14)

So this disease mainly occur in muthuvenil kalam.

Thinai distribution:

63.3% (19) of the cases were coming from Neithal thinai and 36.7% (11) cases were coming from Marutha thinai. So maximum number of cases were from Neithal nilam.

Yakkai distribution:

Among 30 cases 11 cases (36.7%) were Vatha thegi 11 cases (36.7%) were Pitha thegi, 8cases (26.6%) were Kaba thegi.

Vatha and Pitha thegi were equally affected. In Azhal neerchurukku vatham and pitham is predominant.

Gunam:

Among 30cases 20 cases (66.7%) possessed Rasogunam. 7 cases (23.3%) possessed Thamo gunam, 3 cases (10%) possessed Sathuva gunam.

Distribution of cases by Envagai Thervugal (Eight fold examination)

In Envagai thervugal, Naadi was affected in all the 30 cases (100%), Naa was affected (coated,dryness) in 9 cases (30%), Niram was affected (Hyperpigmentation, pale) in 3 cases (10%), Vizhi was affected (pallor) in 1 case (3.3%), sparism was affected (temperature) in 1 case (3.3%).

Moothiram was affected (Burning micturition, dysuria, hematuria) in 30 cases (100%), Malam was affected (Constipation) in 5 cases (16.7%).

Distribution of cases by Udal kattukal:

Among 30 patient Saaram was affected (indigestion, general tiredness) in 30 cases (100%), Seneer was affected (reduced Hb level) in 3case (10%), Kozhupu affected (hyperlipidemia) in 2 cases (6.7%), Enbu was affected (low back pain, knee joint pain) in 11 cases (36.7%), Sukkilam and suronitham was affected (male infertility, PCOS) in 7 cases (23.3%)

Kosangal:

Among 30 cases Annamaya kosam was affected (abdominal pain, anorexia), in 15 cases (50%), Pranamaya kosam was affected (dyspnea, cough) in 9 cases (30%), manomaya kosam was affected (stress) in 1 case (3.3%), Ananthamaya kosam was affected (sleep disturbance) in 11 cases (36.7%), Vinyanamaya kosam normal in all.

Derangement of Vatham:

Among 30 cases Pranan was affected (dyspnea, wheezing) in 8 cases (26.7%), Abanan was affected (burning miturition, dysuria) in 30 cases (100%), Samanan affected (derangement of other vayus), and Viyanan were affected (low back pain, abdominal pain)

in all 30 cases (100%), devathathan was affected (general tiredness) in all 30 cases (100%) at before treatment.

In after treatment, 5 cases was affected (16.7%) in pranan (dyspnea, wheezing), 13 cases was affected (43.3%) in Abanan (burning micturition, dysuria), 20 cases (66.7%) were affected in Samanan, 24 cases (80%) were affected in Viyanan, 2 cases (6.7%) affected in Devathathan

Derangement of Pitham:

Among 30 cases Analpitham was affected (loss of appetite, abdominal pain) in 7 cases (23.3%),Ranjaga pitham (low Hb) was affected in 3 cases(10%), Sathaga pitham (inability to doing work) was affected in 28 cases (93.3%), Prasaka pitham (hyperpigmentation) was affected in 2 cases (6.7%) at before treatment.

In after treatment, 5 cases (16.7%) were affected in Analpitham (loss of appetite, abdominal pain), 3 cases (10%) were affected in Ranjaga pitham (low Hb), 25 cases (83.3) were affected in Sathagapitham (inability to doing work), and 2 cases (6.7%) were affected in Prasaga pitham.

Derangement of Kabam:

Avalambagam was affected (derangement of other type of kabam), in 15 cases (50%), Kilethagam was affected (loss of appetite) in 5 cases (26.7%), Santhigam affected (knee joint pain) was affected in 12 cases (40%) at before treatment.

In after treatment, 14 cases (46.7%) in Avalambagam (derangement of other type of kabam), 6 cases (20%) were affected in Kelethagam (loss of appetite), 12 cases (40%) were affected in Santhiga pitham.

Distribution of cases by Neerkuri:

Color:

In before treatment yellow color urine was observed in 26 cases (86.7%), red color urine was observed in 2 cases (6.7%), straw color urine was observed in 2 cases (6.7%). In after treatment yellow color urine was observed in 7 cases (23.3%), straw color urine was observed in 23 cases (76.7%).

Manam – Foul smell was observed in 7 cases (23.3%)

Nurai - Froth was observed only in 2 cases (6.6%)

Edai - Affected in 12 cases (40%)

Enjal - present in 30 cases (100%)

Volume - The volume of urine was decreased in 22 cases (73.3%).

Distribution cases by Neikuri:

Among 30 cases the Neikuri in 11 cases (36.6%) was observed as serpentine shape (Vatha neer), In 9 cases (30%) was observed as a ring shaped (Pitha neer), in 7 cases (23.3%) it was observed as pearl shaped (Kaba neer), in 1 case (3.3%) it observed in mixed shape (Vatha pitham), in 2 cases was (6.7%) observed as irregular shape.

Clinical features:

In clinical features 17 cases (56.7%) had frequency and urgency of micturition, 3 cases (10%) had supra pubic pain and tenderness, 4 cases (13. 3%) had hematuria, 5 cases (16.7%) had cloudy and unpleasant odor urine, 11 cases (36.7%) had dysuria, 27 cases (90%) had burning micturition, 5 cases (16.7%) had oliguria, 28 cases (93.3%) had low back pain, 26 cases (86.7%) had abdominal pain, 1 case (3.3%) had fever in before treatment.

In after treatment, 5 cases (16.7%) had frequency and urgency of micturition, 2 cases (6.7%) had supra pubic pain and tenderness, 5 cases (16.7%) had dysuria, 6 cases (20%) had burning micturition, 1 case (3.3%) had oliguria, 18 cases (60%) had low back ache, 11 cases (36.7%) had abdominal pain, hematuria and urine may be appear cloudy and have an unpleasant odor negative.

Statistical analysis:

Statistical analysis showed significant difference between before and after treatment in the clinical symptoms and Total WBC count (p=<0.0001 and p value=0.0308)

Outcome:

Primary outcome observation:

Result from urine culture after treatment:

Out of 30 cases, Good improvement in 22 cases (73.3%), Moderate improvement in 5 cases (10.7%), Poor improvement in 3 cases (10%).

Good – Urine culture negative (no organism)

Moderate – colony count slightly reduced

Poor – Additional organism found

Secondary outcome:

Improvement in clinical features:

Among 30 cases 18 cases (60%) has clinically good improvement (symptoms completely relieved after treatment with test drug), 7 cases (23.3%) had moderately improved (symptoms slightly reduced), and 5 cases (16.6%) had poor improvement (symptoms persists).

SUMMARY

SUMMARY

- The aim of the study is to evaluate the therapeutic efficacy of the drug Mallikai choornam (Internal) in Azhal neer churukku.
- Before initiating the clinical study, Institutional Ethical Committee (NIS/IEC/2016/11-05) approval got on 14.10.2016 for conducting the clinical study.
- The clinical study was registered in Clinical Trail Registry of India (CTRI/2017/06/008760)
- The raw drugs were authenticated by Botanist, Medicinal Botany Department of NIS.(No: NISMB 2732017), and the study drug was prepared by the investigator in the Gunapadam lab, National Institute of Siddha, as per the standard operating procedure mentioned in the protocol.
- The Biochemical (qualitative) analysis were done at the Bio chemistry lab of National Institute of Siddha. The biochemical study revealed the presence of Sodium, Silicate, Sulphide, Borate, Potassium, and Tannin
- Physico chemical and Phytochemical analysis of the study drug were done at Tamilnadu Dr MGR Medical University,Guindy, Chennai. The study drug revealed the presence of phytochemical such as Alkaloids, carbohydrates, Saponins, phenols, flavonoids, Protein and amino acids, Diterpenes.
- In vitro study of anti-microbial and lithotriptic activity of Mallikai choornam were done (project ID: NRS/AS/0033/02/17) at Nobel Research Solution, Sathyabama university, Chennai.
- Pilot study had been conducted using laboratory parameter (Urine culture), in which 35 patient had been screened based on inclusion and exclusion criteria, 10 patients had been included in the trial for fixing the duration of the trial drug.
- For clinical study 75 patients were screened based on inclusion and exclusion criteria at the outpatient department of Maruthuvam, National Institute of Siddha. Out of 75 cases 30 cases were recruited for the clinical study. Clinical diagnosis of Azhal naeerchurukku (UTI) was arrived by both siddha and modern methodologies.

- Required laboratory investigations were carried out before and after treatment and the concerned data were recorded in proforma. Before initiating the study, informed consent was obtained from the patients.
- A day before starting the study drug treatment, oil bath was given (Seeraga thylam) to the patients corrected the elevated azhal kutram.
- The patient were treated for a period of 15 days with the study medicine selected Mallikai choornam at the dose of 6 gram (1/2 thola) twice a day with adjuvant of Hot water, before food. (Ref; Chikicha rathina deepam, pg no 122).
- Clinical assessment was done during each visit once in 5 days and the data were noted in the prescribed proforma. During the study period there was no events of any adverse reaction owing to the drug was reported.
- In vitro study revealed that the study drug Mallikai choornam has Antimicrobial and Lithotriptic activity, it acted well in Escherichia coli and staphylococcus aures.
- Statistical analysis showed significant difference between before and after treatment in the clinical symptoms and Total WBC count ($p=<0.0001$ and p value=0.0308)
- Clinically out of 30 cases, 18 cases (60%) has clinically good improvement (symptoms completely relieved after treatment with test drug), 7 cases (23.3%) had moderately improved (symptoms slightly reduced), 5 cases (16.6%) had poor improvement (symptoms persists).
- All 30 cases were taken urine culture before and after the completion of the trial drug treatment.
- Based on urine culture out of 30 cases, Good improvement in 22 cases (73.3%), Moderate improvement in 5 cases (10.7%), Poor improvement in 3 cases (10%).

CONCLUSION

CONCLUSION

The aim of the study was to evaluate the therapeutic efficacy of the study drug Mallikai choornam (Internal) in Azhal neerchurukku.

The clinical study revealed the therapeutic efficacy of the study drug was read from urine culture. Good improvement in 22 cases (73.3%), Moderate improvement in 5 cases (10.7%), Poor improvement in 3 cases (10%).

After treatment out of 30 cases, 18 cases (60%) has clinically good improvement (symptoms completely relieved after treatment with test drug), 7 cases (23.3%) had moderately improved (symptoms slightly reduced), 5 cases (16.6%) had poor improvement (symptoms persists). There were no adverse reaction complaint received during the study.

The pharmacological study revealed the trial drug had anti-microbial and lithotriptic activity.

Physicochemical and phytochemical analysis showed phytoconstituents which is responsible for therapeutic action.

There were no recurrences of urinary infection during the followup period of one month. Statistical analysis showed significant difference between before and after treatment in the clinical symptoms and Total WBC count ($p=<0.0001$ and $p=0.0308$). Because of encouraging clinical and laboratory results, the study may be extended with the same drug in more number of cases in treating Azhal neerchurukku successfully.

ANNEXURES

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47

AYOTHIDOSSPANDITHARHOSPITAL

DEPARTMENT OF MARUTHUVAM

Clinical Evaluation of Siddha herbal formulation "MALLIKAI CHOORNAM" (Internal) in the treatment of "AZHAL NEERCHURUKKU" (Urinary Tract Infection)

FORM l - SCREENING AND SELECTION PROFORMA

OP NO: NAME: …… AGE: ……GENDER: …

OCCUPATION: ……

ADDRESS:

CONTACT NO:

INCLUSION CRITERIA

Patients who will fulfill any of the following criteria will be included in the study:

- Age:19-59yrs
- Sex:Both
- Patient having any 3 symptoms such as burning micturition,dysuria Abdominal pain, lowback ache, frequent urination, oliguria
- Patient willing to go for urine culture
- Patient willing to undergo routine blood investigation
- Patient with urine culture significant for bacteria and fungus (eg*: Escherichia coli, klebsiella, enterococci, S.saprophyticus...)*
- Patient willing to participate in trial and signing in consent form

EXCLUSION CRITERIA:

- History of Diabetes mellitus

  Yes / No
- History of STD (Syphilis,HIV,gonorrhoea)

  Yes / No
- Pregnancy and lactation

  Yes / No
- History of Malignancy

  Yes / No

ADMITTED TO TRIAL

YES ☐ NO ☐

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: Signature of the HOD:

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47

AYOTHIDOSS PANDITHAR HOSPITAL

DEPARTMENT OF MARUTHUVAM

Clinical evaluation of Siddha herbal formulation"MALLIKAI CHOORANAM" (Internal) in the treatment of "AZHAL NEERCHURUKKU" (Urinary tract infection)

FORM II- CASE RECORD FORM

1. STUDY NO ---------- 2. OP/IP NO ----------

3. NAME ---------- 4. . Age (years): _____ Height: ____cms Weight: _____ Kg BMI----------

5. Educational Status:

1) Literate ☐ 2) Illiterate ☐

6. Occupation:

7. Marital Status: 1.Married ☐ 2 .Unmarried ☐

Complaints and Duration:

_____

_____

_____

History of present illness:

_____

_

_____

_

Past History:

_____

_

_____

_

_____

_

_____

_

Socio economic status:

Income group 1.lower ☐ 2.middle ☐ 3.higher ☐

FAMILY HISTORY

Whether this problem runs in family? ☐ Yes ☐ No

If yes, mention the relationship of affected person(s)

1._____

2._____

3._____

DIETARY STYLE

1.Pure vegetarian ☐ 2.Non-vegetarian ☐

BOWEL HABITS & MICTURITION:

History of habitual constipation ☐ 1.Yes ☐ 2.No

History of frequent diarrhea ☐ 1.Yes ☐ 2.No

History of frequent dysuria ☐ 1.Yes ☐ 2.No

7. THEGI: [TYPE OF BODY CONSTITUTION]

Vatham predominant		Kabam predominant	
Pitham predominant		Thondha udal	

8. NILAM: [LAND WHERE PATIENT LIVED MOST]

Kurinji ☐ **Mullai** ☐ **Marutham** ☐ **Neithal** ☐ **Palai** ☐

(Hillyterrain) (Forest) (Plains) (Coastalbelt) (Aridregions)

9.KAALAM:[SEASON]

Kaarkalam- - ☐ Pinpanikalam ☐

(Aug 18-Oct17) (Feb 13-Apr 13)

Koothirkalam- ☐ Ilavenil ☐

(Oct 18- Dec16) (Apr 14- June14)

Munpanikalam - ☐ Muthuvenil ☐

(Dec 17-Feb-12) (Jun 15- Aug-17)

10. GUNAM:[CHARACTER]

Sathuvam ☐ Rasatham ☐ Thamasam ☐

SIDDHA SYSTEM OF EXAMINATION:

1. ENVAGAI THERVU: [EIGHT-FOLD EXAMINATION]

I.NAADI: [PULSE PERCEPTION]

		0th day	5th day	10th day	15th day
	DATE				
KALAM	**VATHAM**				
	PITHAM				
	KABAM				
MATHIRAI	**VATHAM**				
	PITHAM				
	KABAM				
NAADI					

II.NAA:[TONGUE]

	0th day	**5th day**	**10th day**	**15th day**
Date				
Colour	normal/Red pale/yellow	normal/Red pale/yellow	normal/Red pale/yellow	normal/Red pale/yellow
Taste	Sweet/Sour/ Pungent/ Bitter/None	Sweet/Sour/ Pungent/ Bitter/None	Sweet/Sour/ Pungent/ Bitter/None	Sweet/Sour/ Pungent/ Bitter/None
Coating	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Fissure	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Saliva	Normal/ Increased/ Decreased	Normal/ Increased/ Decreased	Normal/ Increased/ Decreased	Normal/ Increased/ Decreased
Dryness	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Glossitis	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Baldness	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent

III.NIRAM: [COMPLEXION]

	0th day	**5th day**	**10th day**	**15th day**
Date				
	Dark/pale/ Yellow tinted/ whitish brown	Dark/pale/ Yellow tinted/ whitish brown	Dark/pale/ Yellow tinted/ whitish brown	Dark/pale/ Yellow tinted/ whitish brown

IV.MOZHI: [VOICE]

	0th day	**5th day**	**10th day**	**15th day**
Date				
	Medium/ High/ Low pitched	Medium/ High/ Low pitched	Medium/ High/ Low pitched	Medium/ High/ Low pitched

V.VIZHI: [EYES] (Lower palpebral conjunctiva)

	0th day	**5th day**	**10th day**	**15th day**
Date				
	Normal/Red pale/yellow	Normal/ Red pale/yellow	Normal/ Red pale/yellow	Normal/ Red pale/yellow

VI. MALAM:[BOWEL HABITS / STOOLS]

	0th day	**5th day**	**10th day**	**15th day**
Date				
Colour	Dark/pale / yellow/ Red	Dark/pale/ yellow/ Red	Dark/pale/ yellow/ Red	Dark/pale/ yellow/ Red
Consistency	Solid/ Semisolid /Watery	Solid/ Semisolid/Watery	Solid/ Semisolid/ Watery	Solid/ Semisolid/Watery
stool bulk	Normal/ Reduced	Normal/ Reduced	Normal/ Reduced	Normal/ Reduced
Constipation	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent
Diaarhoea	Present/ Absent	Present/ Absent	Present/ Absent	Present/ Absent

Neikuri:

Neikkuri	**0th day**	**5th day**	**10th day**	**15th day**
Date				
Serpentine fashion	at___mint Fs/Ss/Ns	at___ min Fs/Ss/Ns	at___ min Fs/Ss/Ns	at___min Fs/Ss/Ns
Annular/Ringed fashion	at___min Fs/Ss/Ns	at___ min Fs/Ss/Ns	at___ min Fs/Ss/Ns	at___mint Fs/Ss/Ns
Pearl beaded fashion	at___mint Fs/Ss/Ns	at___ min Fs/Ss/Ns	at___ min Fs/Ss/Ns	at___mint Fs/Ss/Ns
Mixed fashion	at___mint Fs/Ss/Ns	at___min Fs/Ss/Ns	at___mint Fs/Ss/Ns	at___mint Fs/Ss/Ns
Other fashion	at___mint Fs/Ss/Ns	at___min Fs/Ss/Ns	at___mint Fs/Ss/Ns	at___mint Fs/Ss/Ns

***Fs- Fast spread, Ss-slow spread,, Ns- No spread**

VIII. SPARISAM: [PALPATORY PERCEPTION]

0th day	**5th day**	**10th day**	**15th day**
Date			
Warmth/Hot/ cold/ Sweat	Warmth/Hot/cold/ Sweat	Warmth/Hot/ cold/ Sweat	Warmth/Hot/ cold/ Sweat

2. IYMPORIGAL:[SENSORY ORGANS]

	0th day	**5th day**	**10th day**	**15th day**
Date				
	Normal/ Affected	**Normal/ Affected**	**Normal/ Affected**	**Normal/ Affected**
Mei [Skin]				

Vaai[Buccal cavity]				
Kan [Eyes]				
Mooku[Nose]				
Sevi [ear]				

3. IYMPULANGAL: [MOTOR ORGANS]

	0th day	**5th day**	**10th day**	**15th day**
Date				
	Normal/ Affected	**Normal/ Affected**	**Normal/ Affected**	**Normal/ Affected**
Kai [upperlimb]				
Kal [lowerlimb]				
Vai[Buccal cavity]				
Eruvai [excretory organ]				
Karuvai[Reporduc-tive organ]				

4. KOSAM: [SHEATHS]

	0th day	**5th day**	**10th day**	**15th day**
Date				
	Normal/ Affected	**Normal/ Affected**	**Normal/ Affected**	**Normal/ Affected**
Annamaya kosam (Digestive system)				
Pranamaya Kosam Respiratory System				
Manonmayakosam (Cardio vascular system)				
Vingyanamayakosam (Central nervous system)				
Anandhamayakosam (Reproductive system)				

5. MUKKUTRAM: (AFFECTION OF THREE HUMORS)

A) VATHAM:

	0th day	5th day	10th day	15th day
Date				
	Normal/ Affected	**Normal/ Affected**	**Normal/ Affected**	**Normal/ Affected**
Praanan				
Abaanan				
Samaanan				
Udhaanan				
Viyaanan				
Naahan				
Koorman				
Kirukaran				
Devathathan				
Dhananjeyan				

B) PITHAM:

	0th day	5th day	10th day	15th day
Date	**Normal/ Affected**	**Normal/ Affected**	**Normal/ Affected**	**Normal/ Affected**
Analapitham				
Prasakam				
Ranjakam				
Aalosakam				
Saathakam				

A) KABAM:

	0th day	**5th day**	**10th day**	**15th day**
Date				
	Normal/ Affected	**Normal/ Affected**	**Normal/ Affected**	**Normal/ Affected**
Avalambagam				
Kilethagam				
Pothagam				
Tharpagam				
Santhigam				

6. SEVEN DHATHUS: [SEVEN SOMATIC COMPONENTS]

	0th day	**5th day**	**10th day**	**15th day**
Date				
	Normal/ Affected	**Normal/ Affected**	**Normal/ Affected**	**Normal/ Affected**
Saaram[chyme]				
Senneer[Blood]				
Oon[Muscle]				
Kozhuppu[Fat]				
Enbu[Bones]				
Moolai[Bone marrow]				
Sukkilam/Suronitham [Genital discharges]				

7. SYSTEMIC EXAMINATION:

	0th day	**5th day**	**10th day**	**15th day**
GENITO URINARY SYSTEM				
LOCOMOTOR SYSTEM				
CARDIO VASCULAR SYSTEM				
RESPIRATORY SYSTEM				
GASTRO INTESTINAL SYSTEM				
CENTRAL NERVOUS SYSTEM				
ENDOCRINE SYSTEM				

8. GENERAL EXAMINATION:

	0th day	**5th day**	**10th day**	**15th day**
Date				
Height (cms)				
Weight (kg)				
Temperature(°F)				
Pulse rate (per/ min)				
Heart rate (per/min)				
Respiratory rate(per min)				
Blood pressure (mm/Hg)				
Pallor				

Jaundice				
Cyanosis				
Lymphadenopathy				
Pedal edema				
Clubbing				
Jugular vein pulsation				

9. CLINICAL SYMPTOMS:

	0th day	**5th day**	**10th day**	**15th day**
Date				
Frequency and urgency of micturition				
Suprapubic pain, and tenderness				
Haematuria				
Urine that may appear cloudy and have an unpleasant odour				
Dysuria (Painful voiding)				
Burning micturition				
Oliguria				
Low back ache				
Abdominal pain				
Fever				

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: **signature of the HOD**

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47

AYOTHIDOSSPANDITHARHOSPITAL

DEPARTMENT OF MARUTHUVAM

Clinical Evaluation of Siddha herbal formulation "MALLIKAI CHOORNAM"(Internal) in the treatment of"AZHAL NEERCHURUKKU" (Urinary tract infection)

FORM III LABORATORY INVESTIGATION FORM

1. OP/IP No: _____ 2 .S. No: _____ 3. LabReg no:

BLOOD INVESTIGATION		Before treatment Date:	After treatment Date:	NORMAL VALUES
HB (gms %)				11-16
T.RBC(milli/cu.mm)				3.8-5.5
ESR (mm)	½ hr.			
	1 hr.			1-20
T.WBC (cu.mm)				4000-11,000
DIFFERENTIAL COUNT (%)	Polymorphs			40-75
	Lymphocytes			20-40
	Monocytes			2-10
	Eosinophils			1-6
	Basophils			0-1
Blood glucose (mg/dl)	Fasting			70-110
	PP			80-140
	Random			80-160
Lipid profile (mg/dl)	Serum cholesterol			150-225
	HDL			30-63
	LDL			Upto 130
	VLDL			Up to 40
	TGL			Upto 160
RFT (mg/dl)	Blood urea			16-50
	Serum creatinine			0.6-1.2

	Serum Uric acid			2.5-7.5
LFT (mg/dl)	Total bilirubin			0.2-1.2
	Direct bilirubin			0.1-1.4
	Indirect bilirubin			0.2-0.7
	Serum total protein			6-8
	Serum Albumin			3.5-5
	Serum globulin			2.3-3.5
	Serum fibrinogen			
	Serum calcium			8.5-10.5
	Serum phosphorous			3-4.5
	SGOT IU/L			0-40
	SGPT IU/L			0-35
	Alkaline phosphatase IU/L			80-290

URINE INVESTIGATION

Urine investigation	**Before TMT(with Date)**	**After TMT (With Date)**
Albumin		
Fasting sugar		
PP sugar		
Random Sugar		
Deposits		
Bile salts		
Bile pigments		
Urobilinogen		

MICROBIOLOGY

SEROLOGY	Before treatment Date:	After treatment Date:
VDRL		

SPECIFIC INVESTIGATION

URINE CULTURE- for Bacterial/Fungal infection	0th Day Date :	5th Day Date :	10th Day Date :	15th Day Date :	20th Day Date :

Date:
Station:

Signature of the Investigator:
Signature of the Lecturer: Signature of the HOD

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47,

AYOTHIDOSS PANDITHAR HOSPITAL

DEPARTMENT OF MARUTHUVAM

Clinical Evaluation of Siddha herbal formulation"MALLIKAI CHOORNAM" (Internal) in the Treatment of"AZHAL NEERCHURUKKU"

FORM IV -DRUG COMPLIANCE FORM

S. NO: --------- OPD/IPD NO: ---------- NAME: ---------- REG NO:

Name Of The Drug: MALLIKAI CHOORNAM-6grams/bid/before food with hot water

DAY	DATE	MORNING Time	EVENING Time
DAY1			
DAY2			
DAY3			
DAY4			
DAY5			
DAY6			
DAY7			
DAY8			
DAY9			
DAY10			
DAY11			
DAY12			
DAY13			
DAY14			
DAY15			

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47

AYOTHIDASSPANDITHARHOSPITAL

DEPARTMENT OF MARUTHUVAM

Clinical evaluation of siddha herbal formulation"MALLIKAI CHOORANAM" (Internal) in the treatment of "AZHAL NEERCHURUKKU"(Urinary tract infection)

FORM V- PATIENT INFORMATION SHEET

Name of the Principal Investigator: Dr.G.Rathiga (PG Student)

Name of the Institution : National Institute of Siddha

Tambaram,Sanatorium Chennai-47.

I Dr.G.Rathiga studying M.D (Siddha) in National Institute of Siddha, Chennai. I am doing a clinical trial on the study of AZHALNEERCHURUKKU(Urinary Tract infection), which has the symptos like Yellowish discolouration of urine,Cloudy urine,Pain & tenderness in genitals, Fever followed by dryness of mouth, Bloating of abdomen, Tiredness .This condition is being treated in NIS with many siddha formulation. As a part of M.D(S) research programme and developing new efficacious medicine, I have proposed to study the drug MALLIKAI CHOORANAM for treating this condition. This formulation has been mentioned in siddha literature and empirical evidence with contemporary tools is required for documentation. You can receive medicines free of cost. The duration of treatment period is maximum **15 days**. You have to visit NIS 5 days once and collect drugs for **5days.** The diagnosis tests will be carried out free of cost. The lab investigation will be taken on the first day and after end of the trial. We will assess the effect of treatment after completion of 15**days** of treatment using clinical and lab parameter.

In this regard, I need to ask you few questions. I will maintain confidentiality of your comments and data obtained from you. There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study.

Taking part in this study is voluntary. No compensation will be paid to you for taking part in this study. You can choose not to answer any specific question. There is no

specific benefit for you if you take part in the study, but you will be under our clinical monitoring and specific attention will be given for your health. Taking part in the study may be of benefit to the community, as it may help us to develop medicine for Azhal neerchurukku. In case of any adverse symptoms like severe low back pain, Burning micturition and fever during the treatment shall be reported to me and care will be taken in NIS for relief. You can withdraw from the study at the midst of treatment period, if you are not interested to continue and you will receive our usual treatment without condition.

The information collected in this study, will remain between you and me as a principal investigator. I will not write your name on different forms which sent to different investigating/analysis sections and I will use a code instead given by the principal investigator. Only the principal investigator will know the key to this code which will be kept in safe custody. If you agree to be a participant in this study, you will be screened as per the study protocol.

If you wish to find out more about this study before taking part, you can ask me all the questions you want or contact Dr,G.Rathiga, PG student cum principal investigator of this study, attached to the National Institute of Siddha, Chennai (Mobile phone no:9943119317). You can also contact the Chairman/Member-secretary of Ethics committee, National Institute of Siddha, Chennai – 600047, Tel no: 91-44-22411611, for rights and participation in the study.

தேசிய சித்த மருத்துவ நிறுவனம்

அயோத்திதாஸர் பண்டிதர் மருத்துவமனை சென்னை- 47

அழல் நீர்ச்சுருக்கு என்னும் நோய்க்கான மல்லிகை சூரணம் (உள்மருந்து) சித்த மருந்தின் பரிகரிப்பு திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல் படிவம்

முதன்மை ஆராய்ச்சியாளர் பெயர்:

நிறுவனத்தின் பெயர்: தேசிய சித்த மருத்துவ நிறுவன்ம்

தாம்பரம் சானட்டோரியம்

சென்னை-47.

தேசிய சித்த மருத்துவ நிறுவனத்தில் பட்ட மேற்படிப்பு பயின்று வரும் நான்(மருத்துவர்.க.ராதிகா), அழல் நீர்ச்சுருக்கு என்னும் நோயில் மருத்துவ ஆராய்சியில் ஈடுபட்டுளேன். அழல் நீர்ச்சுருக்கு என்னும் நோயானது சிறுநீர் மஞ்சளித்து சிவந்திருக்கும் நீர் கழித்த பிறகு தாங்க முடியாத வலி மற்றும் எரிச்சலை ஏற்படுத்தல் கை, கால் அசதி சுரம் வாய் வறட்சி உண்டாதல் ஆகிய குறிகுணங்களை உண்டாக்கும்

இந்த ஆராய்ச்சி சம்பந்தமாக சில கேள்விகளை கேட்கவும், தேவையான ஆய்வக பரீசோதனைக்கு தங்களை உட்படுத்தவும் உள்ளேன். தேவையான ஆய்வக பரீசோதனை மருத்துவ ஆய்வுக்கு முன்னும் மருத்துவ ஆய்வின் முடிவு நாளான 15ம் நாளும் மேற்கொள்ளப்படும். இது சம்பந்தமாக தங்களது அனைத்து விவரங்களும் ரகசியமாக வைக்கப்படும் என உறுதியளிக்கிறேன்.

இதில் பயணப்படி முதலிய எந்த உதவித் தொகையும் வழங்கப்படமாட்டாது.

இந்த ஆராய்ச்சியின் போது உடலுக்கு வேறு பாதிப்பு ஏற்படும் பட்சத்தில் தேசிய சித்த மருத்துவமனையில் தக்க சிகிச்சை அளிக்கபடும்.

இந்த ஆராய்சிக்கு தாங்கள் விருப்பத்தின் பேரில் உட்படும் பட்சத்தில் உள்மருந்தாக மல்லிகை சூரணம் வழங்கப்படும்.5 நாளைக்கு ஒரு முறை் மருத்துவமனைக்கு வரவேண்டும்.

இந்த ஆராய்ச்சியில் நோயினராக சேர்ந்த பிறகு உங்களுக்கு விருப்பம் இல்லையெனில் எப்போது வேண்டுமானாலும் விலகி கொள்ளலாம்.

இந்த ஆராய்ச்சி சம்பந்தமாக மற்ற விபரங்களுக்கும் நோயின் தன்மை பற்றியும் முதன்மை ஆராய்ச்சியாளரான மருத்துவர் ராதிகா (பட்ட மேற்படிப்பாளர் பொது மருத்துவ துறை) அணுகவும். கைப்பேசி எண் 9943119317.

மேலும் இந்த ஆராய்ச்சிக்கு ஐயிசி சான்று பெறப்பட்டுள்ளது. இந்த மருந்து சிறப்பாக அழல் நீர்ச்சுருக்கு நோய்க்காக மருத்துவ பாடநூலில் கூறப்பட்டுளது

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47

AYOTHIDOSS PANDITHAR HOSPITAL

DEPARTMENT OF MARUTHUVAM

Clinical evaluation of siddha herbal formulation"MALLIKAI CHOORANAM" (Internal) in the treatment of"AZHAL NEERCHURUKKU"(Urinary tract infection)

FORM VI –INFORMED CONSENT FORM

"I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction.

I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without in any way it affecting my further medical care".

"I have received a copy of the information sheet/consent form".

Date:

Signature of the participant

In case of illiterate participant

"I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely."

Date:

Signature of a witness

Left thumb Impression of the Participant

(Selected by the participant bearing no connection with the survey team)

Date:

Station:

Signature of participant:

Signature of the Investigator:

Signature of the Lecturer: Signature of the HOD

தேசிய சித்த மருத்துவ நிறுவனம்

அயோத்திதாச பண்டிதர் மருத்துவமனை, சென்னை - 47.

பட்ட மேற்படிப்பு மருத்துவத்துறை

அழல் நீர்ச்சுருக்கு என்னும் நோய்க்கான மல்லிகை சூரணம் (உள்மருந்து) சித்த மருந்தின் பரிகரிப்பு திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான் ஒப்புதல் படிவம்

FORM VI- ஒப்புதல் படிவம்

நான் மேற்கூறிய தகவல் படிவத்தை படித்து அல்லது படிக்க கேட்டு கொண்டேன். இது தொடர்பான விளக்கங்களையும் கேட்டு தெரிந்து கொண்டேன். எந்த வித வற்புறுத்தலின்றி, என் சொந்த விருப்பத்தின் பேரில் என்னை இந்த ஆராய்ச்சிக்கு உட்படுத்த என் முழுமனதோடும் சுயநினைவோடும் சம்மதம் தெரிவிக்கின்றேன். எனக்கு விருப்பமில்லாத பட்சத்தில் இந்த ஆராய்ச்சியில் இருந்து என்னை எப்போது வேண்டுமானாலும் விடுவித்து கொள்ளும் உரிமையை பெற்றுள்ளேன் என்பதையும் அறிவேன்.

தேதி:

இடம்:

சாட்சிக்காரர் கையொப்பம்:

பெயர்:

கையொப்பம்: உறவுமுறை :

பெயர் :

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47
AYOTHIDOSSPANDITHARHOSPITAL
DEPARTMENT OF MARUTHUVAM

Clinical Evaluation of Siddha herbal formulation "**MALLIKAI CHOORNAM"(Internal) in** the treatment of **"AZHAL NEERCHURUKKU"(Urinary tract infection)**

FORM VII-WITHDRAWAL FORM

1. SERIAL NO OF THE CASE: ……

2. OP / IP NO: .....

3. NAME: …… 4.AGE: …… 5.GENDER: .....

6. DATE OF TRIAL COMMENCEMENT: ……...

7. DATE OF WITHDRAWAL FROM TRIAL: ……..

8. REASONS FOR WITHDRAWAL:

Long absence at reporting:	Yes/ No
Irregular treatment:	Yes/ No
Shift of locality:	Yes/No
Increase in severity of symptoms:	Yes/No
Development of severe adverse drug reactions:	Yes/No

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: Signature of the HOD:

NATIONAL PHARMACOVIGILANCE PROGRAMME FOR SIDDHA DRUGS

Reporting Form for Suspected Adverse Reactions to Siddha Drugs

Please note: i. **all** consumers / patients and reporters information will remain confidential.

ii. It is requested to report all suspected reactions to the concerned, even if it does not have complete data, as soon as possible.

PeripheralCenter code: State:

1. Patient / consumer identification (please complete or tick boxes below as appropriate)

Name	Father name	Patient / Record No.
Ethnicity	Occupation	
Address Village / Town Post / Via District / State		Date of Birth / Age: Sex: Male / Female Weight : Degum:

2. Description of the suspected Adverse Reactions (please complete boxes below)

Date and time of initial observation		Season:
Description of reaction		Geographical area:

3. List of all medicines / Formulations including drugs of other systems used by the patient during the reporting period:

Medicine	**Daily dose**	**Route of administration & Vehicle - Adjuvant**	**Date**		**Diagnosis for which medicine taken**
			Starting	**Stopped**	
Siddha					
Any other system of medicines					

4. Brief details of the Siddha Medicine which seems to be toxic:

Details	Drug – 1	Drug – 2	Drug – 3
a) Name of the medicine			
b) Manufacturing unit and batch No. and date			
c) Expiry date			
d) Purchased and obtained from			
e) Composition of the formulation / Part of the drug used			

b) Dietary Restrictions if any
c) Whether the drug is consumed under institutionally qualified medical supervision or used as self medication.
d) Any other relevant information.

5. Treatment provided for adverse reaction:

6. The result of the adverse reaction / side effect / untoward effects (please complete the boxes below)

Recovered:	Not recovered:	Unknown:	Fatal:	If Fatal Date of death:
Severe: Yes / No.	Reaction abated after drug stopped or dose reduced:			
	Reaction reappeared after re introduction:			
Was the patient admitted to hospital? If yes, give name and address of hospital				

7. Any laboratory investigations done to evaluate other possibilities? If yes specify:

8. Whether the patient is suffering with any chronic disorders?
Hepatic Renal Cardiac Diabetes Malnutrition

Any Others

9. H/O previous allergies / Drug reactions:

10. Other illness (please describe):

11. Identification of the reporter:

Type (please tick): Nurse / Doctor / Pharmacist / Health worker / Patient / Attendant / Manufacturer / Distributor / Supplier / Any others (please specify)
Name:
Address:
Telephone / E – mail if any :

Signature of the reporter: **Date:**

Please send the completed form to:

Name & address of the RRC-ASU / PPC-ASU

The Director
National Institute of Siddha,
e For Siddha Medicine),
Tambaram Sanatorium, Chennai-600 047.
Fax : 044 – 22381314
Website : www.nischennai.org
Email: nischennaisiddha@yahoo.co.in

* *

may be sent within one month of observation /occurrence of ADR

Who Can Report?

⇒ Any Health care professionals like Siddha Doctors / Nurses / Siddha Pharmacists / Patients etc.

What to Report?

⇒ All reactions, Drug interactions,

Confidentiality

⇒ The patient's identity will be held in strict confidence and protected to the fullest extent.

⇒ Submission of report will be taken up for remedial measures only not for legal claim

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: Signature of the HOD

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 47

AYOTHIDASSPANDITHARHOSPITAL

DEPARTMENT OF MARUTHUVAM

Clinical evaluation of siddha herbal formulation"MALLIKAI CHOORANAM" (Internal) in the treatment of "AZHAL NEERCHURUKKU"(Urinary tract infection)

FORM VIII- DIETARY ADVICE FORM

The following diet to be taken:

- Drink adequate water
- Leafy greens& vegetables
- Lady's finger
- Small Onion
- Ginger
- Steamed vegetables & vegetable salads
- Bananas
- Lemon or orange juice
- Apple
- Pears
- Gooseberry
- Dates
- Fig fruit
- Pomegranate
- Grapes
- Guava
- Whole wheat
- Brown rice
- Milk
- Butter milk

- Ghee
- Fenugreek
- Coriander seeds
- Cumin seeds

The following food should be avoided ;(ITCHA PATHIYAM)

- Tamarind
- Bitter gourd
- Mango
- Brinjal
- Cluster been
- White pumpkin
- Sesbanian leaves
- Mustard
- Sesame
- Mushrooms
- Tea
- Coffee
- Preserved cool drinks
- Oily & fried foods
- Sour foods
- Foods which causes indigestion

AVOID

- Excessive lust
- Alcohol
- Tobacco

தேசிய சித்த மருத்துவ நிறுவனம், சென்னை 47

அயோத்திதாசர் பண்டிதர் மருத்துவமனை

அழல் நீர்ச்சுருக்கு என்னும் நோய்க்கான மல்லிகை சூரணம் (உள்மருந்து) சித்த மருந்தின் பரிகரிப்பு திறனைக் கண்டறியும் மருத்துவ ஆய்வு

FORM VIII- DIETARY ADVICE FORM

சேர்க்க கூடிய உணவு வகைகள்

- பச்சை கீரைகள்,காய்கறிகள்
- வெண்டைக்காய்
- சின்னவெங்காயம்
- இஞ்சி
- வேகவைத்த காய்கறிகள்
- வாழைப்பழம்
- எலுமிச்சை சாறு
- ஆப்பிள்
- பேரிக்காய்
- நெல்லிக்கனி
- பேரீச்சம்பழம்
- அத்திபழம்
- மாதுளை
- திராட்சை
- கொய்யா
- கோதுமை
- தீட்டாத அரிசி
- பால்
- மோர்
- நெய்
- வெந்தயம்
- தனியா

- சீரகம்

தவிர்க்க கூடிய உணவு வகைகள்

- பாகல்
- கோழிக்கறி
- ஆட்டுக் கறி
- கத்தரி
- அகத்திக்கீரை
- தேங்காய்
- மாங்காய்
- எள்
- கடுகு
- பலா
- பெருங்காயம்
- புளி
- முட்டை
- காளான்
- வெள்ளை சர்க்கரை
- தேநீர்
- காபி
- எண்ணெய், வறுத்த உணவுகள்
- துவர்ப்பு உணவுகள்

தவிர்க்கவேண்டியவை

- புகையிலை
- கள்ளு

FULL DETAILS (Read-only) -> Click Here to Create PDF for Current Dataset of Trial

CTRI No	**CTRI/2017/06/008760** [Registered on: 05/06/2017] **Trial Registered Prospectively**
Acknowledgement Number	REF/2017/05/014430
Last Modified On:	05/06/2017
Post Graduate Thesis	Yes
Type of Trial	Interventional
Type of Study	Drug
Study Design	Single Arm Trial
Public Title of Study Clarification(s) with Reply Modification(s)	Clinical study of siddha medicine Mallikai choornam in the treatment of Neer erichal(Urinary tract infection)
Scientific Title of Study Clarification(s) with Reply Modification(s)	Clinical evaluation of siddha herbal formulation"Mallikai chooranam" (Internal) in the treatment of "Azhal neerchurukku" (Urinary Tract infection)
Trial Acronym	
Secondary IDs if Any	**Secondary ID** / **Identifier**: NIL / NIL
Details of Principal Investigator or overall Trial Coordinator (multi-center study)	**Name**: Dr G Rathiga **Designation**: PG scholar **Affliation**: National institute of Siddha **Address**: Department of Maruthuvam National Institute of Siddha Tambaram Sanatorium Kancheepuram TAMIL NADU 600 047 India **Phone**: 9943119317 **Fax**: 04422381314 **Email**: grathiga90@gmail.com

Details Contact Person Scientific Query	**Name**: Dr T Lakshmikantham **Designation**: Lecturer **Affliation**: National institute of Siddha **Address**: Department of Maruthuvam National Institute of Siddha Tambaram Sanatorium Kancheepuram TAMIL NADU 600 047 India **Phone**: 9444466880 **Fax**: 04422381314 **Email**: drlakshmiramaswamy@gmail.com
Details Contact Person Public Query	**Name**: Dr G Rathiga **Designation**: Department of Maruthuvam National Institute of Siddha **Affliation**: National institute of Siddha **Address**: Department of Maruthuvam National Institute of Siddha Tambaram Sanatorium Kancheepuram TAMIL NADU 600 047 India **Phone**: 4422381314 **Fax**: 04422381314 **Email**: grathiga90@gmail.com
Source of Monetary or Material Support Clarification(s) with Reply Modification(s)	National institute of Siddha Tambaram Sanatorium chennai 47
Primary Sponsor Clarification(s) with Reply Modification(s)	**Name**: Ayothidoss pandithar hospital **Address**: National Institute of Siddha Tambaram sanatorium chennai 600047 **Type of Sponsor**: Research institution and hospital

Details of Secondary Sponsor

Name	Address
NIL	NIL

Countries of Recruitment

India

Sites of Study

No of Sites = **1**

Name of Principal Investigator	Name of Site	Site Address	Phone/Fax/Email
Dr G Rathiga	Ayothidoss Pandithar Hospital	Room no 1 Department of Maruthuvam National Institute Of Siddha Tambaram sanatorium Kancheepuram TAMIL NADU	9943119317 04422381314 grathiga90@gmail.com

Details of Ethics Committee

No of Ethics Committees= **1**

Name of Committee	Approval Status	Date of Approval	Approval Document	Is IEC?
Institutional ethics committee	Approved	14/10/2016	Approval File	No

Regulatory Clearance Status from DCGI

Status	Date	Aproval Document
Not Applicable	No Date Specified	No File Uploaded

Health Condition / Problems Studied

Health Type	Condition
Patients	Azhal neerchurukku (urinary tract infection)

Intervention / Comparator Agent

Type	Name	Details
Intervention	Mallikai choornam	6 grams of malligai choornam will be orally twice a day along with hot water for a period of 15 days
Comparator Agent	Nil	Nil

Inclusion Criteria	**Age From**: 19.00 Year(s) **Age To**: 59.00 Year(s) **Gender**: Both **Details**: 1 Patient having any of three symptoms such as burning micturation oliguria, dysuria,abdominal pain,low backache 2 Patient whois willing to go for urine culture&undergo routine blood investigation. 3 Patients with Urine culture significant for bacteria or fungus (eg.E.coli,klebsiella,enterococci,gram-verods,proteusmirablis.....)
Exclusion Criteria	**Details**: 1 Pregnant 2 H/O Diabetes mellitus 3 H/O Sexually transmitted disease 4 H/O Malignancy
Method of Generating Random Sequence	Not Applicable
Method of Concealment	Case Record Numbers
Blinding/Masking	Open Label
Primary Outcome	**Outcome**: It is assessed by the Urine culture when the bacterial or fungal infection becomes negative after treatment and Absence of clinical signs and symptoms. **TimePoints**: 15 days
Secondary Outcome	**Outcome**: Socio economic status , Age related to the disease will be assessed **TimePoints**: 15 days
Target Sample Size	**Total Sample Size=**"30" **Sample Size from India=**"30" **Final Enrollment numbers achieved (Total)=** "Applicable only for Completed/Terminated trials"

	Final Enrollment numbers achieved (India)="Applicable only for Completed/Terminated trials"
Phase of Trial	Phase 2
Date of First Enrollment (India)	15/06/2017
Date of Study Completion (India)	Applicable only for Completed/Terminated trials
Date of First Enrollment (Global)	No Date Specified
Date of Study Completion (Global)	Applicable only for Completed/Terminated trials
Estimated Duration of Trial	**Years=**"1" **Months=**"0" **Days=**"0"
Recruitment Status of Trial (Global)	Not Applicable
Recruitment Status of Trial (India)	Not Yet Recruiting
Publication Details	Non yet
Brief Summary	it is a single,non -randamized open -label trial to determine the efficacy and safety of MALLIKAI CHOORNAM in patients with AZHAL NEERCHURUKKU(URINARY TRACT INFECTION). In this trail 30 urinary tract infections patients will be recruited and the trial drug will be administered 6 gram twice a day along with hot water for a period of 15 days during the study period all the study related data will be recorded and documented in a separate trail master file for each patients. During the trial period if any adverse effect will be noticed and referred to pharmacovigilance dept.in NIS and further management will also be given in NIS OPD and IPD. The entire trail will be monitored by the research monitoring committee of NIS. During this trail all the safety and efficacy parameters will be recorded in the CRF. After completion of the trail all the study related data will be analysed statistically the outcome of this trail will be published in Indian Journal of Medical Research.

The Tamil Nadu Dr.M.G.R.Medical University

69, Anna Salai, Guindy, Chennai - 600 032.

This Certificate is awarded to Dr/Mr/Mrs.....RATHIGA. G.....

For participating as ~~Resource Person~~ / Delegate in the Twenty First Workshop on

"RESEARCH METHODOLOGY & BIOSTATISTICS"

*For **AYUSH Post Graduates & Researchers***

Organized by the Department of Siddha

The Tamil Nadu Dr. M.G.R. Medical University From 25th to 29th April 2016.

Dr.N.KABILAN, MD(S),
PROF & HEAD
DEPT.OF SIDDHA

Prof.**Dr.P.ARUMUGAM,** M.D.,
REGISTRAR i/c

Prof. **Dr.S.GEETHALAKSHMI,** M.D., Ph.D.,
VICE CHANCELLOR

NATIONAL INSTITUTE OF SIDDHA- राष्ट्रीय सिद्ध संसथान
Ministry of AYUSH- आयुष मंत्रालय
GOVERNMENT OF INDIA-भारत सरकार
TAMBARAM SANATORIUM, CHENNAI -600 047 -ताम्बरम सनटोरियमचेन्नई -600 047
फ़ोन\Tele : 044-22411611 फैक्स\Fax : 22381314
ईमेल: nischennaisiddha@yahoo.co.in वेब :www.nischennai.org

F.No.NIS/6-20/IEC/15-16 Dt: 14.10.2016

CERTIFICATE

Address of Ethics Committee: National Institute of Siddha, Tambaram Sanatorium, Chennai-600047, Tamil Nadu, India	
Principal Investigator: Dr. G.Rathiga – I year, Dept.of Maruthuvam	
Protocol Title:- Clinical evaluation of Siddha herbal formulation "Mallikai Chooranam" (internal) in the treatment of "Azhalneerchurukku (Urinary Tract Infection)"	
Documents filed	1) Protocol, 2) Data Collection forms
Clinical trial Protocol (others – Specify)	**Yes-(M.D-Dissertation)**
Informed consent documents	**Yes**
Any other documents	**-**
Date of IEC approval & its number	**NIS/IEC/2016/11-05/ 14.10.2016**

We approve the trial to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study.

(Dr.V.Subramanian)
Chairman

(Prof.Dr.V.Banumathi)
Member Secretary

NATIONAL INSTITUTE OF SIDDHA ★ CHENNAI 600 047

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 600047

BOTANICAL CERTIFICATE

Certified that the following plant drugs used in the Siddha formulation **"Mallikai Chooranam"** (Internal) taken up for Post Graduation Dissertation studies by **Dr G.Rathiga** M.D.(S), II year, Department of Maruthuvam, 2017, are identified through Visual inspection, Experiance, Education & Training, Organoleptic characters, Morphology and Taxonomical methods as

Smilax china Linn. (Liliaceae), Root

Glycyrrhiza glabra Linn. (Fabaceae), Root

Cuminum cyminum Linn. (Apiaceae), Fruit

Nigella sativa Linn. (Ranunculaceae), Seed

Shorea robusta Gaertn.f. (Dipterocarpaceae), Oleo resin

Elettaria cardamomum Maton. (Zingiberaceae), Seed

Cinnamomum verum J.Presl (Lauraceae), Stem Bark

Syzygium aromaticum (Linn.) Merr. & L.M. Perry (Myrtaceae), Flower bud

Vitis vinifera Linn. (Vitaceae), Dried fruit

Coriandrum sativum Linn. (Apiaceae), Fruit

MEDICINAL BOTANY ★ CHENNAI 600 047 ★ National Institute of Siddha

Certificate No: NISMB2732017

Date: 10-02-2017

Authorized Signatory

Dr. D. ARAVIND, M.D.(S),M.Sc.,
Assistant Professor
Department of Medicinal Botany
National Institute of Siddha
Chennai - 600 047, INDIA

Noble research solutions
We Trust in Quality and Ethics

Noble Research Solutions

We Trust in Quality and Ethics

E-mail: nobleresearchsolutions@gmail.com
Contact: 9710437419, Admin: 044 - 42691289

Date: 17.03.2017

To,

Dr.Radhika

National Institute of Siddha

Tambaram Sanatorium, Chennai - 600 047, Tamil Nadu, India.

Project Id : NRS/AS/0033/02/2017

Project Delivery Report

S.No	Study Description	Annexure no
1.	Evaluation of anti-urolithiatic potential of the study drug *Malligai Choornam* by single diffusion gel growth technique.	I
2.	Evaluation of Anti-Microbial Profiling of study drug *Malligai Choornam* by disc diffusion method.	II

Note:

- *Annexures was attached as a separate enclosure along with this report.*

NOBLE RESEARCH SOLUTIONS TAMIL NADU INDIA CHENNAI

Appolo Diagnostic & Research Centre

(An ISO - 9001 - 2008 Certified Laboratory)
(X-ray, Computerised E.C.G. Lab - Attached & Allergy Clinic)

No. 36/1, Veeraswamy Main Street, Opp Bethel High School, Ayanavaram, Chennai - 600 023. ✆ : 044 - 26453278

Lab No : L-Jan18-2507
Patient Name : MRS. SHENBAGAVALLI
Ref by Dr : DR.

Date : 23/2/2018
Age / Sex : 40 Yrs/F

Test Name	Result	Normal Range

MICRO BIOLOGY REPORT

CULTURE & SENSITIVITY

SAMPLE	URINE FOR CULTURE & SENSITIVITY.
CULTURE YEILDS GROWTH OF :	E. COLI - GROWN IN CULTURE.
Colony Count	1,80,000CFU / ml

ANTIBIOTICS

AMIKASIN :	H.S
CLARITHROMYCIN :	M.S
CIPROFLOXACIN :	H.S
CEFOTAXIME :	H.S
SPARFLOXACIN :	H.S
CEFUROXIME :	M.S
CEFOPERAZONE :	M.S
AMPICLOX :	R.S
CEFADROXIL :	H.S
ROXYTHROMYCIN :	R.S
GENTAMICIN :	M.S
AZITHROMYCIN :	H.S
OFOLOXACIN	H.S
AMPICILLIN	R.S
CLOXACILLIN	R.S
NITROFURANTOIN	R.S
NALIDIXIC ACID	M.S
NORFLOXACIN	H.S
[illegible]	H.S

22/02/2018

An ISO 9001:2008 Certified Laboratory

Appolo Diagnostic & Research Centre

(An ISO - 9001 - 2008 Certified Laboratory)
(X-ray, Computerised E.C.G. Lab - Attached & Allergy Clinic)

No. 36/1, Veeraswamy Main Street, Opp Bethel High School, Ayanavaram, Chennai - 600 023. ✆ : 044 - 25453278

Lab No	:	L-Mar18-2620	Date	:	14/3/2018
Patient Name	:	MRS. SHENBAGAVALLI	Age / Sex	:	40 Yrs/F
Ref by Dr	:	DR.			

Test Name	Result	Normal Range

MICRO BIOLOGY REPORT

CULTURE & SENSITIVITY

SAMPLE	URINE FOR CULTURE & SENSITIVITY.
CULTURE YEILDS GROWTH OF :	READING UPTO 48 HOURS - NIL
Report :	NO, GROWTH IN CULTURE.

14/3/2018

An ISO 9001:2008 Certified Laboratory

Cell : 94452 98559
Lab : 95435 50465
Fax : 044 4316 2832

JENI'S LAB SERVICES

Shop # 09, Bld # 7/21, St. Patricks Complex , Indira Gandhi Rd. C. Pallavaram, Chennai 600 043

Working Hours 7.45Am - 9.45 Pm Sundays 8.45Am - 1.45 Pm

Patient'sName	:	**Mrs. RAJESWARI,**
Age / Gender	:	43 Year Old / Female ,
Ref by Dr	:	**NATIONAL INSITUTE OF SIDDHA.**
Sample's Name	:	URINE .

Collection Date : 28 / 1 / 2018 / SUN
Report Date : 30 / 1 / 2018 / TUE

MICROBIOLOGY

CULTURE &

Collection Of Specimen	:	28/ 1 / 2018
Report Date	:	30 / 1 / 2018
Name of Specimen	:	" URINE "
Organnisms Isolated	:	" E . COLI " Grown in Culture.
Colony Count	:	> 50,000 CFU /ml

SENSITIVITY

Highly Sensitive To	:	Amikacin, Norfloxacin, Pefloxacin ,Gentamicin, Lmipenem,Meropenm, Cefixime,Ofloxacin.
Moderatly Sensitive To	:	Cefotoxime,Ceftrinxzone, Cloxaillin,Piperacillin,Augmentin.
Resistance To	:	Cephalexin ,Netilmycin, Ampicillin ,Amoxicillin , Nalidixic Acid ,Cephaloridine, Carbencilin.

End of Report

JENI'S LAB SERVICES
Shop # 09, Bld. # 7/21,
St. Patricks Complex,
Indira Gandhi Road, C.Pallavaram,
Chennai - 600 043.
Email : jaidassan1999@gmail.com

We for Accuracy

Cell : 94452 98559
Lab : 95435 50465
Fax : 044 4316 2832

JENI'S LAB SERVICES

Shop # 09, Bld # 7/21, St. Patricks Complex , Indira Gandhi Rd, C . Pallavaram, Chennai 600 043
Working Hours 7.45Am - 9.45 Pm Sundays 8.45Am - 1.45 Pm

Patient's Name : ***M rs . R. RAJESHWARI ,***

Age / Gender : 43 Year Old / Female ,

Ref by Dr : ***MEDICAL OFFICER ,***

Sample's Name : URINE .

Collection Date : 19 / 02 / 2018 / Monday
Report Date : 21 / 02 / 2018 / Wednesday

LABORATORY REPORT

CLINICAL MICROBIOLOGY

CULTURE & SENSITIVITY

Collection Of Specimen	:	19 / 02 / 2018 / MONDAY
Report Date	:	21 / 02 / 2018 / WEDNESDAY
Name of Specimen	:	" URINE "
Type of Culture	:	Routine bacterial - aerobic Culture.
Organisms Isolated	:	No Pathogenic Organisms Grown in Culture after 48 Hrs of 37 degree Incubation.

End of Report

Sr Lab Technician

JENI'S LAB SERVICES
Shop # 09, Bld. # 7/21,
St. Patricks Complex,
Indira Gandhi Road, C.Pallavaram,
Chennai - 600 043.
Email : jaidasan1999@gmail.com

We for Accuracy

Page # 1 / 1

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Kannusamy pillai, chickicha rathina deepam, 2007 edition,page no;122.
2. Lr.colonel. K.R.Krithikar & majoe B.D.Basu, Indian medicinal plants,Vol I, Pagr no;290
3. K.N.Kuppusamy mudaliyar, Siddha maruthuvam pothu, 2012 edition,page no 47
4. Deva asirvatham samuvel, Marunthu sei ilyalum kalaium, page no; 29,30,32,11
5. Praveen kumar, Michel clark,Kumar & clark clinical medicine, 5th edition 2002, Page no; 11
6. T.V Sambasivam pillai dictionary, vol 4,second edition, page no1838
7. Nicki R. Colledge, Devidson's principles & practice of Medicine, 21st edition,2010.
8. S.p.ramachandran, Therayiar Neerkuri vaithiyam, June 2000, 1st edition
9. S. Murugesa muthaliyar, Gunapadam- mooligai, 2nd edition, 2008.
10. Ak. Narkarani, Indian meteria medica, VolI, 3rd edition 2005.
11. B.D,chaurasiya, Human anatomy, Vol 2,Third edition,2005.
12. K.Sembulingam,Prema sembulingam,Essential of medical physiology, Fourth edition, 2008
13. Yugi vaithiya sinthamni, 2nd edition, 2005,Published by Thamarai pathipagam.
14. Richard. V.Goering, Mim's medical microbiology, 4th edition,2008
15. Sathis Guopta, The short text book of Medical microbiology, 9th edition, 2009
16. Anantha narayanan & panikaar's, Text book of microbiology, 8th edition.2010.
17. Micheal ford, medical micro biology Fundamental of biomedical science, oxford.
18. Microbiology an introduction- Geard .J. Tortova,2000,
19. The Wealth of India, A dictionary of Indian raw material & industrial products, Vol 11,2004.
20. Sabaisenthil.B & Kalaiselvan V.K,a review pharmacological activities of smilax china&smilax zylanica,International journal of chemical and pharmaceutical science,2017 march,vol 8 (1).
21. Rohit katoria,pharmacological activity on glyzyrrhiza glabra-a review,Asian journal of pharmaceutical and clinical research,vol 6,1,2013

22. Monica Damle,Glycyrrhiza glabra (Liqurice)-A potent medicinal herb,International journal of herbal medicine,2014,2 (2),132-136.
23. Harpred kaur dhaliwal,phytopharmacological properties of cuminum ciminum as a potential medicinal seeds-An overview,World journal of pharmacy and pharmaceutical science,Vol 5,478-489.
24. Rajesh kumar soni,A review update on shorea robusta Gearta.(sal),Journal of drug delivery and therapeutic 2013,3(6),127-132.
25. Isokubo,Antimicrobial activity of flavour components of cardamom-Elatteria cardamomum(Zingiberacae) seed,J Agric food 1991,39,1984-1986.
26. John .M. Quale,Invitro activity of cinnamomum zylanicum against azole resistant and sensitive candida species and a pilot study of cinnamon fort oral candidiasis,The American journal of chinese medicine,Vol 24,1996,103pages.
27. Monika mittal,phytochemical evaluation and pharmacological activity of Syzygium aromaticum;A comprehensive review,International journal of pharmacology and pharmaceutical science,Vol 6,2014,67-72.
28. Dewrat yadaw,Antimicrobial properties of black grape(Vitis vinifera) peel extract against antibiotic-resistant pathogenic bacteria and toxin producing molds,Indian journal of pharmacology 2015,Vol 47,663-667.
29. Prof.Dr.Ali Esmail Ali Snofi,A review on chemical constituents and pharmacological activities of corriandrum sativum,ISOR journal of pharmacy,ol 6,July 2016,17-42.
30. Masoud Zare Shehach,Biological activities of new antimicrobial peptide from coriandrum sativum,International journal of Bio science,Vol 4,6,2014,89-99.